PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2004-026126

(43)Date of publication of application : 29.01.2004

(51)Int.Cl. B60R 21/045
B60K 37/00
B60R 21/22

(21)Application number : 2002-249031

(22)Date of filing : 28.08.2002

(71)Applicant : DAIHATSU MOTOR CO LTD

(72)Inventor : TAOKA YOSHIBUMI

(30)Priority

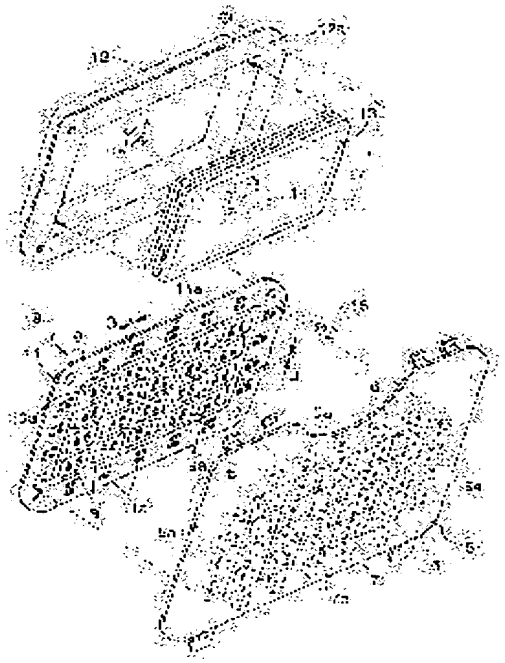
Priority number : 2002135417 Priority date : 10.05.2002 Priority country : JP

(54) INSTRUMENT PANEL STRUCTURE FOR VEHICLE

(57)Abstract:

PROBLEM TO BE SOLVED: To inhibit an impact applied to a neighborhood to a knee part of a passenger while it receives the neighborhood to the knee part of the passenger and the state that a waist part of the passenger is forwardly moved along a seating part of a seal is inhibited when a large impact is applied to a car body in an instrument panel structure of the vehicle.

SOLUTION: The instrument panel structure for a vehicle is provided with a receiving part 7 separatable from the instrument panel on a lower part of the instrument panel made of a synthetic resin; and movement means 13, 14 for separating the receiving part 7 from the instrument panel and rapidly moving it to a rear seat side when the large impact is applied to the car body. A plastically deformable absorption member 8 made of a metal or a reinforced synthetic resin is mounted to a back surface of the receiving part 7.



LEGAL STATUS

[Date of request for examination] 08.06.2005

[Date of sending the examiner's decision of

rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]
disengageable [from said instrument panel] in the lower part of the instrument panel made of synthetic resin -- catching -- a part -- having
If a big impact starts a car body, while having said migration means which catches, is made to separate a part from said instrument panel, and is quickly moved to a back sheet side,
It is the instrument-panel structure of said car which is caught and has been attached in the rear face of a part about the absorption member made of metal or consolidation synthetic resin which can be freely deformed plastically.
[Claim 2]
It has the bending section continued and connected to two or more surface parts which kept predetermined spacing mutually and have been arranged, and said surface part which adjoins while bending so that it may project from said surface part, and said absorption member is constituted,
It is the instrument-panel structure of said car according to claim 1 which is caught and has been attached in the rear face of a part about said absorption member so that the surface part of said absorption member may contact the rear face of the aforementioned receptacle stop part and the bending section of said absorption member may project in said side which catches and separates from the rear face of a part.
[Claim 3]
Instrument-panel structure of a car [equipped with said inhibition means which crosses a predetermined location with said migration means when / said / it catches, a part is separated from said instrument panel and it moves to a back sheet side to catch and to prevent the migration by the side of the sheet behind a part] according to claim 1 or 2.
[Claim 4]
Instrument-panel structure of the car according to claim 3 which constitutes said inhibition means by equipping the periphery section of said absorption member with a connection, and connecting said connection to said instrument panel in the condition before [said] catching and separating a part from said instrument panel, bending so that it may project in said side which catches and separates from the rear face of a part.
[Claim 5]
The rear-face side of the aforementioned receptacle stop part is equipped with the inflator which expands an air bag and said air bag quickly,
Instrument-panel structure of the car of any one publication among claims 1-4 which constitute said migration means by said air bag and inflator.
[Claim 6]
Instrument-panel structure of the car according to claim 5 constituted so that it may be thought as said instrument panel and said air bag may develop from between parts to the method of outside when [said] said air bag expands, and it catches, a part is separated from said instrument panel and it moves to a back sheet side.
[Claim 7]
Instrument-panel structure of the car according to claim 5 or 6 constituted with the synthetic resin by which blow molding was carried out in said air bag.

[Claim 8]
Instrument-panel structure of the car of any one publication among claims 5-7 which arrange the pad member between said absorption members and air bags.
[Claim 9]
Instrument-panel structure of the car of any one publication among said claims 1-8 which catch and constitute the part disengageable in two or more elements.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]
This invention relates to the structure of an instrument panel where it is located ahead of a sheet, in cars, such as a passenger car, a commercial vehicle, and a bus.
[0002]
[Description of the Prior Art]
If a car collides after crew has sat down on the sheet, while crew's lumbar part moves ahead along with the seat of a sheet, crew's upper half of the body tends to fall ahead by using crew's lumbar part as the supporting point with the inertia force to the front at this time.
In such a condition, since only a part for crew's lumbar part to have moved ahead along with the seat of a sheet will approach [crew's upper half of the body] an air bag when the air bag arranged ahead of crew catches crew's upper half of the body, when crew's upper half of the body begins to fall ahead, crew's upper half of the body will reach an air bag quickly. In other words, only a part for crew's lumbar part to have moved ahead along with the seat of a sheet is not desirable in respect of calling it the impact absorption of the crew by the air bag since it falls and an impact must be absorbed by stroke ahead of [ahead of crew's upper half of the body / where it fell, the stroke became small and the air bag became small / the above-mentioned] crew's upper half of the body.
[0003]
Therefore, it is required in the condition ahead of crew's upper half of the body that fall and a stroke does not become small, by suppressing the condition that crew's lumbar part moves ahead along with the seat of a sheet that an air bag should catch crew's upper half of the body.
By arranging a lower air bag inside the lower part of an instrument panel, and expanding a lower air bag, some instrument panels are made to separate and there are some which were constituted so that it might be made to move to a back sheet side as indicated by JP,11-139233,A in this case. Near crew's knee region is caught by some separated instrument panels by this, and the condition that crew's lumbar part moves ahead along with the seat of a sheet is suppressed.
[0004]
[Problem(s) to be Solved by the Invention]
When it constitutes so that some instrument panels may be make to divide into a Prior art like a publication and it may be make to move to a back sheet side and near crew's knee region is catch by some instrument panels in addition to the point refer to as suppress the condition that crew's lumbar part moves ahead along with the seat of a sheet , the point refer to as suppress the impact which starts near crew's knee region is also important .
In this case, when near crew's knee region is caught by some instrument panels, and some instrument panels deform, it is expected that the impact which starts near crew's knee region will be absorbed.
[0005]
However, since some instrument panels may bend linearly when near crew's knee region is caught by some instrument panels, since it consists of synthetic resin (refer to drawing 6 of said JP,11-139233,A), an instrument panel has the room of an improvement at the point referred to as suppressing the impact which starts near crew's knee region.
This invention aims at constituting so that the impact which starts near crew's knee region can be

suppressed, suppressing the condition that catch near crew's knee region and crew's lumbar part moves ahead along with the seat of a sheet, in the instrument-panel structure of a car, when a big impact starts a car body.

[0006]

[Means for Solving the Problem]

[I]

According to the description of claim 1, the lower part of the instrument panel made of synthetic resin is equipped with a disengageable migration means to catch, to have a part, to think that a big impact starts a car body, to make it dissociate from an instrument panel and to move a part to a back sheet side quickly, from the instrument panel, and the absorption member made of metal or consolidation synthetic resin which can be freely deformed plastically was caught, and it has attached in the rear face of a part.

[0007]

When a big impact tends to start a car body and crew's lumbar part tends to move ahead along with the seat of a sheet by this according to the description of claim 1, it catches with a migration means, and a part dissociates from an instrument panel, moves to a back sheet side quickly, and catches, near crew's knee region is caught by the part, and the condition that crew's lumbar part moves ahead along with the seat of a sheet is suppressed.

[0008]

[II]

In a condition given in the preceding clause [I], since according to the description of claim 1 the absorption member made of metal or consolidation synthetic resin which can be freely deformed plastically was caught and it has attached in the rear face of a part, if it catches and near crew's knee region is caught by the part, it is going to catch and an absorption member tends to deform plastically together with a part. Thereby, according to the description of claim 1, when an absorption member mainly deforms plastically, it thinks that it gets used near crew's knee region, and a part and an absorption member deform into a concave, and the impact which starts near crew's knee region is absorbed.

[0009]

In this case, it is not necessary to prepare supporter material in the fixed part inside an instrument panel, and since it is in the condition of the absorption member having caught, it being directly attached in the rear face of a part, and the absorption member having caught, and having been supported by the part according to the description of claim 1, it is not necessary to constitute so that it may say that it makes supporter material support an absorption member (even if it has supporter material, it is good at small-scale supporter material).

[0010]

[III]

According to the description of claim 2, the preceding clause [I] and [II] are equipped with the "operation" of a publication like the case of claim 1, and, in addition to this, it has the following "operations."

Two or more surface parts which according to the description of claim 2 kept predetermined spacing mutually and have been arranged, It has the bending section continued and connected to an adjoining surface part, bending so that it may project from a surface part. The absorption member was caught and it has attached in the rear face of a part so that it may project in the side which the absorption member is constituted, the surface part of an absorption member catches, the rear face of a part is contacted, and the bending section of an absorption member catches, and separates from the rear face of a part.

[0011]

By this, according to the description of claim 2, catch like the publication to the preceding clause [I] and [II], and near crew's knee region is caught by the part, and if it is going to catch and a part tends to deform into a concave in the surface part and the bending section of an absorption member, while the surface part of each other where an absorption member adjoins is pulled apart, the bending section of an absorption member is bent, or it extends, being made to approach mutually, and or -- the absorption member deforms plastically. Like the description of claim 2, by equipping an

absorption member with two or more bending sections, compared with the simple plate-like absorption member of one sheet, it is easy to deform plastically and becomes so that an absorption member may get used near crew's knee region.
[0012]
In this case, since an absorption member is metal or a product made of consolidation synthetic resin according to the description of claim 2 The configuration of the bending section of an absorption member (for example, with a radius of how much the bending section of an absorption member is bent) By changing as how much predetermined spacing of the surface part where an absorption member adjoins is set, or as how much the die length (die length which projects from the surface part of an absorption member) of the bending section of an absorption member is set The deflection reinforcement of the bending section of an absorption member can be set as arbitration, and it becomes possible to set the absorption condition of the impact which starts near crew's knee region as arbitration.
[0013]
Since it is stopped by extent which projects in the side which the surface part of an absorption member catches, it is contacted and attached in the rear face of a part, and the bending section of an absorption member catches, and separates from the rear face of a part according to the description of claim 2, the tooth space occupied for arrangement of an absorption member will not become big.
[0014]
[IV]
According to the description of claim 3, the preceding clause [I], [II], and [III] are equipped with the "operation" of a publication like claim 1 or the case of 2, and, in addition to this, it has the following "operations."
It is expected that the impact which starts near crew's knee region like a publication for the preceding clause [I] when it catches and the part moved to the back sheet side too much, it caught with the migration means, and a part dissociates from an instrument panel, and moves to a back sheet side quickly and near crew's knee region is caught [it catches and] by the part becomes large.
[0015]
When according to the description of claim 3 it caught with the migration means, the part dissociated from the instrument panel and it moves to a back sheet side quickly, Since it has an inhibition means exceeding a predetermined location to catch and to prevent the migration by the side of the sheet behind a part When it caught, and a part moves to a back sheet side too much, and catches and near crew's knee region is caught by the part, the condition of saying that the impact which starts near crew's knee region becomes large can be avoided.
[0016]
[V]
According to the description of claim 4, the preceding clause [I] - [IV] are equipped with the "operation" of a publication like the case of claim 3, and, in addition to this, it has the following "operations."
According to the description of claim 4, the inhibition means is constituted by connecting with an instrument panel, bending so that it may project in the side which catches a connection and separates from the rear face of a part in the condition before having and catching a connection in the periphery section of an absorption member and separating a part from an instrument panel.
[0017]
When it catches with a migration means, and a part dissociates from an instrument panel, and moves to a back sheet side quickly and the connection of the bent absorption member extends by this according to the description of claim 4 It catches, the migration by the side of the sheet behind a part (absorption member) is permitted, and it will be in the condition exceeding a predetermined location that caught and the migration by the side of the sheet behind a part (absorption member) was prevented, by being in the condition that the connection of an absorption member cannot extend next.
Therefore, if according to the description of claim 4 it constitutes so that it may extend and a part of periphery section of an absorption member may be made into a connection, it is not necessary to perform what a member other than an absorption member is prepared and says that this another

member continues and connects with an absorption member and an instrument panel.
[0018]
[VI]
According to the description of claim 5, preceding clause [I] - [V] is equipped with the "operation" of a publication like any one case among claims 1-4, and, in addition to this, it has the following "operations."
According to the description of claim 5, the inflator which expands an air bag and an air bag quickly is caught, the rear-face side of a part is equipped with it, and the air bag and the inflator constitute the migration means.
[0019]
By this, according to the description of claim 5, when an air bag expands by the inflator, it catches, a part and an absorption member are pushed and it catches, and a part dissociates from an instrument panel and moves to a back sheet side quickly. In this case, since it will be in the condition that it catches with the air bag which expanded, and a part and the whole absorption member are pushed uniformly [abbreviation], and are supported Like the publication to the preceding clause [II] and [III], if it catches and near crew's knee region is caught by the part It catches, a part and an absorption member incline, and it is easy to deform into a concave that there is nothing (for example, it is rare for the part which is hard to deform into a concave selectively to arise, or for the part which is easy to deform into a concave selectively to arise).
[0020]
[VII]
According to the description of claim 6, preceding clause [I] - [VI] is equipped with the "operation" of a publication like the case of claim 5, and, in addition to this, it has the following "operations."
Like a publication for the preceding clause [I], when [disengageable from an instrument panel] it catches and has a part, it catches and there is a limitation in the area of a part at the lower part of the instrument panel made of synthetic resin (for example, when it catches into the part of the drivers side of an instrument panel and has a part, by existence of the base of a steering handle, it cannot catch and area of a part cannot be set as a big thing).
[0021]
According to the description of claim 6, it catches, when an air bag expands, and it is thought as an instrument panel, and when a part dissociates from an instrument panel and moves to a back sheet side quickly, it constitutes from between parts so that an air bag may develop to the method of outside.
If an air bag is constituted somewhat more greatly, and it constitutes by this according to the description of claim 6 so that it may be thought as an instrument panel and an air bag may develop from between parts to the method of outside For example, when it cannot catch and near knee region of crew's one of the two can be caught by the part, It becomes possible to constitute so that near the knee region of crew's another side may be caught with the air bag developed to the method of outside. For example, an air bag is developed toward parts other than near crew's knee region, and it becomes possible to constitute so that parts other than near crew's knee region may be caught with an air bag.
[0022]
[VIII]
According to the description of claim 7, the preceding clause [I] - [VII] are equipped with the "operation" of a publication like claim 5 or the case of 6, and, in addition to this, it has the following "operations."
Since the synthetic resin by which blow molding was carried out constitutes the air bag according to the description of claim 7, compared with the case where sew up a cloth object and an air bag is constituted, it will become advantageous in respect of reduction of a production cost.
[0023]
[IX]
According to the description of claim 8, the preceding clause [I] - [VIII] are equipped with the "operation" of a publication like any one case among claims 5-7, and, in addition to this, it has the following "operations."

According to the description of claim 8, the pad member is arranged between an absorption member and an air bag. By this, like a publication for the preceding clause [VI], when an air bag expands by the inflator By catching, a part and an absorption member being pushed and catching, and setting the hardness of a pad member as a suitable thing to an air bag, when a part dissociates from an instrument panel and moves to a back sheet side quickly It becomes possible to catch and to move a part and an absorption member to a back sheet side with the shape of an approximate plane, (without making) expansion of an air bag deform into convex.
Moreover, it is possible to constitute only from catching and a part and an absorption member deforming into a concave so that the impact which starts near crew's knee region also by the pad member may be absorbed, when absorption of the impact which starts near crew's knee region is not fully performed.
[0024]
[X]
According to the description of claim 9, preceding clause [I] - [IX] is equipped with the "operation" of a publication like any one case among claims 1-8, and, in addition to this, it has the following "operations."
According to the description of claim 9, it catches and the part is constituted disengageable in two or more elements. Since it will be hard coming to generate the condition that it catches and a part regulates the plastic deformation of an absorption member by this if it catches and a part separates into two or more elements when it catches, and a part dissociates from an instrument panel and moves to a back sheet side quickly, it catches and a part and an absorption member come to get used well near crew's knee region.
[0025]
[Embodiment of the Invention]
As shown in drawing 1 (b), it has an instrument panel 2 and a steering handle 3 ahead of a driver's seat 1, and the interior of a steering handle 3 is equipped with the air bag 4. The steering-handle 3 bottom is equipped with the lower panel section 5 made of synthetic resin in the instrument panel 2 made of synthetic resin.
[0026]
As shown in drawing 2 and drawing 3 , it is formed so that two or more slots 6 may draw a grid on the rear face of the lower panel section 5 longitude and sideways, and the shape of a rectangle surrounded by the outermost slot 6 catches, and the part 7 is formed in the lower panel section 5. It reaches by the periphery outside the rear face of the lower panel section 5, and catches, and much heights 5a and 7a are formed in the rear face of a part 7 in one.
[0027]
As shown in drawing 2 and drawing 3 , the absorption member 8 is constituted by performing press working of sheet metal to the plate made of metal or consolidation synthetic resin (synthetic resin, such as a compound consolidation mold and a fiber consolidation mold). The predetermined spacing B is kept, in the absorption member 8, by front view, the rectangle-like surface part 9 arranges all around, and is arranged, and it has the bending section 10 continued and connected to the adjoining surface part 9, bending so that it may project in an opposite hand from the front face of a surface part 9. The periphery section of the absorption member 8 (surface part 9) is equipped with a connection 22 in one, it has bent so that a connection 22 may project in an opposite hand from the front face of a surface part 9 like the bending section 10, and the connection 22 is equipped with the plate-like flange 11 in one. The openings 9a and 11a of the shape of a small rectangle are formed in the surface part 9 and the flange 11.
[0028]
According to the above structure, as shown in drawing 2 and drawing 3 , insert heights 5a of the lower panel section 5 in opening 11a of the flange 11 of the absorption member 8, catch it, and heights 7a of a part 7 is inserted in opening 9a of the surface part 9 of the absorption member 8. Reach lower panel section 5, catch the surface part 9 and flange 11 of the absorption member 8, and the rear face of a part 7 is made to contact, heights 5a of the lower panel section 5, and by catching, and heating and crushing heights 7a of a part 7, it reaches lower panel section 5, and catches, and the absorption member 8 is attached in the rear face of a part 7. In this condition, it will be in the

condition that the bending section 10 and the connection 22 of the absorption member 8 counter the slot 6 of the lower panel section 5, and the bending section 10 and the connection 22 of the absorption member 8 will be in the condition of projecting in the lower panel section 5 and the side which catches and separates from the rear face of a part 7.

[0029]

As shown in drawing 2 and drawing 3 , it has the supporter material 12 constituted by bending a metal plate to box-like, and the lower air bag 13 is attached in the supporter material 12, and the interior of the lower air bag 13 is equipped with the inflator 14. The lower air bag 13 is constituted and folded up by the synthetic resin by which blow molding was carried out, and is attached in the supporter material 12. An inflator 14 equips the periphery section with much injection-tip 14a, and inside, it fills up with an igniter (not shown), an enhancer (not shown), and a generation-of-gas agent (not shown), and it is constituted. The periphery section of the supporter material 12 is equipped with flange 12a, and the flange 11 of flange 12a of the supporter material 12 and the absorption member 8 is connected with the bracket 15 arranged inside an instrument panel 2 with the bolt 16.

[0030]

If the collision sensor (not shown) with which the car body was equipped detects a collision according to the above structure, an enhancer will be lit by the igniter in an inflator 14, a generation-of-gas agent will burn by combustion of an enhancer, and the gas which occurred from the generation-of-gas agent will be injected in the direction of a periphery from injection-tip 14a at a radial. Gas flows toward the center section of the lower air bag 13 from the periphery of the lower air bag 13, the lower air bag 13 expands, and the absorption member 8 is pushed on the back driver's seat 1 side (method of the space right of drawing 2).

[0031]

This will be in the condition of moving to the back driver's seat 1 side quickly, while the bending section 10 and the connection 22 of the absorption member 8 are extended with the lower air bag 13 (plastic deformation carried out), the surface part 9 of the absorption member 8 is detached mutually and the whole absorption member 8 has been an approximate plane-like, as shown in the drawing 1 (**) and drawing 4 from drawing 3 . If the absorption member 8 will be in the above conditions, it will be in the condition that a slot 6 fractures and catches, a part 7 will be in the condition of separating into two or more elements and separating, and catches, and a part 7 moves to the back driver's seat 1 side quickly together with the absorption member 8. As it can come, simultaneously is shown in drawing 1 (b), the air bag 4 with which the steering handle 3 was equipped expands.

[0032]

After it caught as shown in drawing 1 (b) and drawing 4 , and the part 7 and the absorption member 8 had moved to the back driver's seat 1 side quickly, when crew's lumbar part tends to move ahead along with seat 1a of a driver's seat 1, it catches, crew's right and near the left knee region A are caught by a part 7 and the absorption member 8, and the condition that crew's lumbar part moves ahead along with seat 1a of a driver's seat 1 is suppressed.

[0033]

In this case, when tend to catch, the part 7 and the absorption member 8 tend to deform into the concave, the absorption member 8 (bending section 10 of the absorption member 8) mainly deforms plastically and the lower air bag 13 deforms by crew's right and near the left knee region A, the impact which starts crew's right and near the left knee region A is absorbed.

Since the flange 11 of the absorption member 8 is connected with the bracket 15 with the bolt 16, it catches, the migration by the side of the driver's seat 1 behind a part 7 and the absorption member 8 is stopped, and there is nothing [a thing] exceeding a predetermined location the absorption member 8 disperses in the back driver's seat 1 side. A part 7 seems to catch (since it to catch and for the part 7 to be attached in the absorption member 8 by catching, and heating and crushing heights 7a of a part 7), and not to disperse in the back driver's seat 1 side, since it catches to the absorption member 8 and the part 7 is attached.

[0034]

[The 1st exception gestalt of implementation of invention]

In above-mentioned [Embodiment of the Invention], as shown in drawing 5 , the pad members 17 (plate-like [equipped with predetermined thickness]), such as urethane material, may be constituted

so that it may arrange between the absorption member 8 and the lower air bag 13.
Thus, when are constituted, and the lower air bag 13 expands, the bending section 10 and the connection 22 of push and the absorption member 8 are extended in the absorption member 8 at the back driver's seat 1 side (plastic deformation carried out) and the surface part 9 of the absorption member 8 is mutually detached as shown in drawing 6 from drawing 5 , while the whole absorption member 8 is maintained in the shape of an approximate plane by the pad member 17, it will be in the condition of moving to the back driver's seat 1 side quickly.
[0035]
[The 2nd exception gestalt of implementation of invention]
It may replace with above-mentioned [Embodiment of the Invention] and the above-mentioned [1st exception gestalt of implementation of invention], and as shown in drawing 7 and drawing 8 , you may constitute.
Although the flange 11 of flange 12a of the supporter material 12 and the absorption member 8 is connected with the bracket 15 arranged inside an instrument panel 2 with the bolt 16 with above-mentioned [Embodiment of the Invention] and the above-mentioned [1st exception gestalt of implementation of invention] as shown in drawing 3 and drawing 5 , in drawing 7 , only flange 12a of the supporter material 12 is connected with the bracket 15 with the bolt 16.
[0036]
As shown in drawing 7 , the flange 11 and connection 22 (refer to drawing 2 and drawing 3) of the absorption member 8 were abolished, the bracket 15 and the absorption member 8 were covered, and the wire 18 is connected (in the condition which shows in drawing 7 , the wire 18 is slack for a while). It is made easy to make outermost slot 6a in a slot 6 deeper than inside slot 6b, and to fracture it. Structures other than this are the same as drawing 2 and drawing 3 . Moreover, in the structure shown in drawing 7 , the pad member 17 as shown in drawing 5 may be constituted so that it may arrange between the absorption member 8 and the lower air bag 13.
[0037]
If the collision sensor with which the car body was equipped detects a collision according to the above structure, an enhancer will be lit by the igniter in an inflator 14, a generation-of-gas agent will burn by combustion of an enhancer, and the gas which occurred from the generation-of-gas agent will be injected in the direction of a periphery from injection-tip 14a at a radial. Gas flows toward the center section of the lower air bag 13 from the periphery of the lower air bag 13, the lower air bag 13 expands, and the absorption member 8 is pushed on the back driver's seat 1 side. Therefore, it will be in the condition that outermost slot 6a fractures, and the bending section 10 of the absorption member 8 is seldom prolonged, but it catches in the condition that inside slot 6b seldom fractures, and a part 7 and the absorption member 8 move to the back driver's seat 1 side quickly, as [show / in drawing 8].
[0038]
If it catches and crew's right and near the left knee region A are caught by a part 7 and the absorption member 8 when crew's lumbar part tends to move ahead along with seat 1a of a driver's seat 1 as this shows drawing 8 , each of slot 6b tends to bend, and it is going to think that it gets used crew's right and near the left knee region A, and is going to crater the whole part 7 in a concave. or -- while the surface part 9 of each other where the absorption member 8 adjoins is pulled apart in connection with this, it is going to crater the whole absorption member 8 in a concave, being made to approach mutually so that the bending section 10 of the absorption member 8 may be bent, may catch and may get used crew's right and near the left knee region A like a part 7. The impact which starts crew's right and near the left knee region A as mentioned above is absorbed.
[0039]
Since a bracket 15 and the absorption member 8 are covered and the wire 18 is connected, it catches, the migration by the side of the driver's seat 1 behind a part 7 and the absorption member 8 is stopped, and there is nothing [a thing] exceeding a predetermined location the absorption member 8 disperses in the back driver's seat 1 side. A part 7 seems to catch (since it to catch and for the part 7 to be attached in the absorption member 8 by catching, and heating and crushing heights 7a of a part 7), and not to disperse in the back driver's seat 1 side, since it catches to the absorption member 8 and the part 7 is attached.

[0040]
[The 3rd exception gestalt of implementation of invention]
the [above-mentioned [Embodiment of the Invention] and / of implementation of [invention] -- the [of implementation of 1 another gestalt] and [invention] -- in 2 another gestalten], as shown in drawing 9 and drawing 10 (b) (b), opening of the round small hole 19, the square hole 20, and the cross-like hole 21 may be carried out to the part between four surface parts 9 of the bending section 10 of the absorption member 8. Thereby, it is considered by holes 19, 20, and 21 for the bending section 10 of the absorption member 8 to deflection-come to be easy.
[0041]
[The 4th exception gestalt of implementation of invention]
In above-mentioned [Embodiment of the Invention] and [1st exception gestalt of implementation of invention] - [the 3rd exception gestalt of implementation of invention], as shown in drawing 11 (b) instead of the shape of a rectangle, it may constitute in the shape of a triangle, or the surface part 9 of the absorption member 8 may be constituted in the shape of a hexagon, as shown in drawing 11 (b).
[0042]
[The 5th exception gestalt of implementation of invention]
It may replace with above-mentioned [Embodiment of the Invention] and [1st exception gestalt of implementation of invention] - [the 4th exception gestalt of implementation of invention], and as shown in drawing 12 , and 13, 14, 15 and 16, you may constitute.
It has two or more narrow bending sections 10 continued and connected to the surface part 9 which adjoins while bending so that it may project from the front face of a surface part 9 by front view in an opposite hand in a two or more rectangle-like surface part 9, two or more narrow plane connections [which connect the surface part 9 which adjoins especially in a central site] 23, and periphery side as shown in drawing 13 , and 14 and 15, and the absorption member 8 is constituted. The periphery section of a surface part 9 is equipped with two or more narrow connections 22 in one, it has bent so that a connection 22 may project in an opposite hand from the front face of a surface part 9 like the bending section 10, and the connection 22 is equipped with the plate-like flange 11 in one. The openings 9a and 11a of the shape of a small rectangle are formed in the surface part 9 and the flange 11.
[0043]
In this case, as shown in drawing 14 and drawing 15 , it consists of die length of the bending section 10 of the absorption member 8 so that the die length of the connection 22 of the absorption member 8 may become long, and it consists of amounts to which the bending section 10 of the absorption member 8 projects in an opposite hand from the front face of a surface part 9 so that the amount to which the connection 22 of the absorption member 8 projects in an opposite hand from the front face of a surface part 9 may become big.
Although horizontal **** of the lower edge part of the absorption member 8, the right, and the left is equipped with the flange 11 and the connection 22 as shown in drawing 13 and drawing 14 , the upper edge part of the absorption member 8 is not equipped with the flange 11 and the connection 22.
[0044]
It is made easy to arrange the slot 6 so that the plate-like connection 23, the bending section 10, and the connection 22 of the absorption member 8 may be countered, to make deeper than inside slot 6b (slot 6b which counters the plate-like connection 23 and the bending section 10 of the absorption member 8) outermost slot 6a (slot 6a which counters the connection 22 of the absorption member 8) in a slot 6, and to fracture, as shown in drawing 13 , and 14 and 15. The pad member 17 (refer to drawing 5) is arranged between the absorption member 8 and the lower air bag 13. The lower air bag 13 is constituted from a lower air bag 13 of above-mentioned [Embodiment of the Invention], the [1st exception gestalt of implementation of invention], and the [2nd exception gestalt of implementation of invention] by the big thing for a while. The flange 11 of the absorption member 8 and flange 12a of the supporter material 12 are attached in the rear face of the lower panel section 5 together by inserting heights 5a of the lower panel section 5 in opening 11a of the flange 11 of the absorption member 8, inserting in opening of flange 12a of the supporter material 12, and heating and crushing heights 5a of the lower panel section 5. Structures other than this are the same as

drawing 2 and drawing 3 .
[0045]
If the collision sensor with which the car body was equipped detects a collision according to the above structure, an enhancer will be lit by the igniter in an inflator 14, a generation-of-gas agent will burn by combustion of an enhancer, and the gas which occurred from the generation-of-gas agent will be injected in the direction of a periphery from injection-tip 14a at a radial. Gas flows toward the center section of the lower air bag 13 from the periphery of the lower air bag 13, the lower air bag 13 expands, and the absorption member 8 is pushed on the back driver's seat 1 side. Therefore, as shown in drawing 16 , outermost slot 6a fractures and the bending section 10 and the connection 22 of the absorption member 8 will be in the condition that slot 6b of elongation and the inside catches in the condition of seldom fracturing, and a part 7 and the absorption member 8 move to the back driver's seat 1 side quickly.
[0046]
Since the flange 11 of the absorption member 8 is connected with the instrument panel 2 as shown in drawing 16 , although it catches, the migration by the side of the driver's seat 1 behind a part 7 and the absorption member 8 is stopped and a connection 22 exists in horizontal **** of the lower edge part of the absorption member 8 (catching part 7), the right, and the left, it will be in the condition exceeding a predetermined location that a connection 22 does not exist in the upper edge part of the absorption member 8 (catching part 7). Therefore, as shown in drawing 12 , in connection with expanding and pushing the absorption member 8 on the back driver's seat 1 side, the lower air bag 13 is thought to be an instrument panel 2, and the lower air bag 13 develops it up from between parts 7 (absorption member 8).
[0047]
If it catches and crew's right and near the left knee region A are caught by a part 7 and the absorption member 8 when crew's lumbar part tends to move ahead along with seat 1a of a driver's seat 1 by this, each of slot 6b tends to bend, and it is going to think that it gets used crew's right and near the left knee region A, and is going to crater the whole part 7 in a concave. It is going to crater the whole absorption member 8 in a concave so that it may catch in connection with this and may get used crew's right and near the left knee region A like a part 7. The right of the crew at the time of parts other than crew's right and near the left knee region A, and crew's right and the left knee region A catching, and separating in the upper part from a part 7 and the left knee region A are caught by the part of the lower air bag 13 which expanded up.
[0048]
[The 6th exception gestalt of implementation of invention]
You may constitute, as it replaces with above-mentioned [Embodiment of the Invention] [1st exception gestalt of implementation of invention] - [the 5th exception gestalt of implementation of invention] and is shown in drawing 17 , and 18, 19 and 20.
As shown in drawing 17 , and 18 and 19, in the rear face of the lower panel section 5, one slot 6 is formed in the shape of a rectangle, a slot 6 is not formed in a central site, but the shape of one rectangle catches and the part 7 is formed in the lower panel section 5.
[0049]
As shown in drawing 17 , and 18 and 19, it has the rectangle-like one surface part 9 by front view, and the periphery section of a surface part 9 is equipped with two or more narrow connections 22 in one, it has bent so that a connection 22 may project in an opposite hand from the front face of a surface part 9, and a connection 22 is equipped with the plate-like flange 11 in one, and the absorption member 8 is constituted. The openings 9a and 11a of the shape of a small rectangle are formed in the surface part 9 and the flange 11. Although horizontal **** of the lower edge part of the absorption member 8, the right, and the left is equipped with the flange 11 and the connection 22, the upper edge part of the absorption member 8 is not equipped with the flange 11 and the connection 22.
[0050]
As shown in drawing 17 , and 18 and 19, the slot 6 is arranged so that the connection 22 of the absorption member 8 may be countered. The pad member 17 (refer to drawing 5) is arranged between the absorption member 8 and the lower air bag 13. The lower air bag 13 is constituted from

a lower air bag 13 of above-mentioned [Embodiment of the Invention], the [1st exception gestalt of implementation of invention], and the [2nd exception gestalt of implementation of invention] by the big thing for a while. Structures other than this are the same as drawing 2 , and 3, 14 and 15.
[0051]
If the collision sensor with which the car body was equipped detects a collision according to the above structure, an enhancer will be lit by the igniter in an inflator 14, a generation-of-gas agent will burn by combustion of an enhancer, and the gas which occurred from the generation-of-gas agent will be injected in the direction of a periphery from injection-tip 14a at a radial. Gas flows toward the center section of the lower air bag 13 from the periphery of the lower air bag 13, the lower air bag 13 expands, and the absorption member 8 is pushed on the back driver's seat 1 side. Therefore, as shown in drawing 20 , a slot 6 fractures, it catches, and a part 7 and the absorption member 8 maintain the shape of an approximate plane (based on the point that catch and a slot 6 does not exist in a part 7), and the connection 22 of the absorption member 8 will be in elongation and the condition that it moves to the back driver's seat 1 side quickly.
[0052]
Since the flange 11 of the absorption member 8 is connected with the instrument panel 2 as shown in drawing 20 , although it catches, the migration by the side of the driver's seat 1 behind a part 7 and the absorption member 8 is stopped and a connection 22 exists in horizontal **** of the lower edge part of the absorption member 8 (catching part 7), the right, and the left, it will be in the condition exceeding a predetermined location that a connection 22 does not exist in the upper edge part of the absorption member 8 (catching part 7). Therefore, in connection with expanding and pushing the absorption member 8 on the back driver's seat 1 side, the lower air bag 13 is thought to be an instrument panel 2, and the lower air bag 13 develops it up from between parts 7 (absorption member 8).
[0053]
If it catches and crew's right and near the left knee region A are caught by a part 7 and the absorption member 8 by this when crew's lumbar part tends to move ahead along with seat 1a of a driver's seat 1, it is going to think that it gets used crew's right and near the left knee region A, and is going to crater the whole part 7 in a concave. It is going to crater the whole absorption member 8 in a concave so that it may catch in connection with this and may get used crew's right and near the left knee region A like a part 7. The right of the crew at the time of parts other than crew's right and near the left knee region A, and crew's right and the left knee region A catching, and separating in the upper part from a part 7 and the left knee region A are caught by the part of the lower air bag 13 which expanded up.
[0054]
[The 7th exception gestalt of implementation of invention]
As the [above-mentioned 5th exception gestalt of implementation of invention] and the above-mentioned [6th exception gestalt of implementation of invention] are shown in drawing 21 Although the absorption member 8 top, and a lower edge part and right horizontal **** are equipped with a flange 11 and a connection 22 when it catches and the part 7 has been arranged to the right side of base 3a of a steering handle 3 in the part by the side of the driver's seat 1 of an instrument panel 2 It constitutes so that horizontal **** on the left of the absorption member 8 may not be equipped with a flange 11 and a connection 22.
[0055]
Therefore, if the lower air bag 13 expands, in connection with the lower air bag 13 pushing the absorption member 8 on the back driver's seat 1 side, as shown in drawing 21 , it will be thought as an instrument panel 2 and the lower air bag 13 will develop from between parts 7 (absorption member 8) to the left. Thereby, when crew's lumbar part tends to move ahead along with seat 1a of a driver's seat 1, it catches, near the knee region A on the right of crew is caught by a part 7 and the absorption member 8, and near parts other than crew's right and near the left knee region A or the knee region A on the left of crew is caught by the part of the lower air bag 13 which expanded to the left.
[0056]
In the structure shown in above-mentioned drawing 21 , it may constitute so that it may develop also

up in addition to the lower air bag 13 developing to the left (constituting so that it may develop to inverse L-shaped by front view), and the lower air bag 13 developed up may constitute so that the key cylinder 24 may be covered.
[0057]
[The 8th exception gestalt of implementation of invention]
In the above-mentioned [6th gestalt of implementation of invention], as shown in drawing 22 and drawing 23 , horizontal **** of the absorption member 8 top, a lower edge part and the right, and the left may be equipped with a flange 11 and a connection 22, and the lower air bag 13 may be constituted in the same magnitude as the lower air bag 13 of above-mentioned [Embodiment of the Invention], the [1st exception gestalt of implementation of invention], and the [2nd exception gestalt of implementation of invention].
[0058]
Although it will be in the condition that the absorption member 8 maintains the shape of an approximate plane with the lower air bag 13 (based on the point that catch and a slot 6 does not exist in a part 7), and it moves to the back driver's seat 1 side quickly, by this if the lower air bag 13 expands, the lower air bag 13 is developed neither to the upper part nor the method of width.
[0059]
[The 9th exception gestalt of implementation of invention]
In above-mentioned [Embodiment of the Invention] and [1st exception gestalt of implementation of invention] - [the 8th exception gestalt of implementation of invention] Reach lower panel section 5, catch, abolish the heights 5a and 7a of a part 7, and the openings 9a and 11a of the surface part 9 of the absorption member 8 and a flange 11 are abolished. You may constitute so that it may reach lower panel section 5, the surface part 9 and flange 11 of the absorption member 8 may be caught with adhesives and the rear face of a part 7 may be pasted.
[0060]
In above-mentioned [Embodiment of the Invention] and [1st exception gestalt of implementation of invention] - [the 8th exception gestalt of implementation of invention], an instrument panel 2 and the lower panel section 5 may not be constituted on another object, but the lower panel section 5 may be formed in an instrument panel 2 in one. It changes to Slots 6, 6a, and 6b, and in the shape of a perforation, by the slit which kept predetermined spacing and has been arranged, it may catch and a part 7 may be formed in the lower panel section 5 in one. This invention can also be applied to a passenger seat (not shown) only to a driver's seat 1.
In above-mentioned [Embodiment of the Invention] and [1st exception gestalt of implementation of invention] - [the 8th exception gestalt of implementation of invention], a cloth object may be sewn up and the lower air bag 13 may be constituted.
[0061]
[Effect of the Invention]
According to the description of claim 1, it sets in the instrument-panel structure of a car. When the big impact started the car body and it constitutes so that it may catch with a migration means, a part may dissociate from an instrument panel and it may move to a back sheet side quickly By catching the absorption member made of metal or consolidation synthetic resin which can be freely deformed plastically, and attaching in the rear face of a part Suppressing the condition that catch, catch near crew's knee region by the part, and crew's lumbar part moves ahead along with the seat of a sheet It can constitute so that it may think that it gets used near crew's knee region and the part and the absorption member may deform into the concave, and the impact which starts near crew's knee region can be appropriately absorbed now.
[0062]
Since according to the description of claim 1 it did not need to constitute so that it might say that an absorption member catches, it is directly attached in the rear face of a part, supporter material is prepared in the fixed part inside an instrument panel, and it makes supporter material support an absorption member, it became advantageous in respect of the simplification of structure (since it was good at small-scale supporter material even if it had supporter material).
[0063]
According to the description of claim 2, it has the "effect of the invention" of above-mentioned claim

1 like the case of claim 1, and, in addition to this "effect of the invention", has the following "effects of the invention."
Since according to the description of claim 2 it is easy to deform plastically and becomes by equipping an absorption member with two or more bending sections compared with the simple plate-like absorption member of one sheet so that an absorption member may get used near crew's knee region It thinks that it gets used near crew's knee region, a part and an absorption member will become advantageous in respect of saying that it is made to deform into a concave, and the impact which starts near crew's knee region can be appropriately absorbed now.
[0064]
Since it becomes possible to set the absorption condition of the impact which can set the deflection reinforcement of the bend section of an absorption member as arbitration , and starts near crew's knee region by change the configuration of the bend section of an absorption member as arbitration according to the description of claim 2 , it can perform easily constitute so that it may correspond to the instrument panel and various kinds of cars of a different class .
[0065]
It was stopped by extent which projects in the side which according to the description of claim 2 an absorption member catches, it is contacted and attached in the rear face of a part, and the bending section of an absorption member catches, and separates from the rear face of a part, and since the tooth space occupied for arrangement of an absorption member did not become big, it caught and became advantageous in respect of miniaturization of a near [a part].
[0066]
According to the description of claim 3, it has above-mentioned claim 1 or the "effect of the invention" of 2 like claim 1 or the case of 2, and, in addition to this "effect of the invention", has the following "effects of the invention."
When according to the description of claim 3 it caught with the migration means, the part dissociated from the instrument panel and it moves to a back sheet side quickly, By having an inhibition means exceeding a predetermined location to catch and to prevent the migration by the side of the sheet behind a part When it caught, and a part moves to a back sheet side too much, and catches and near crew's knee region is caught by the part The condition of saying that the impact which starts near crew's knee region becomes large can be avoided now, and the impact which starts near crew's knee region can be appropriately absorbed now.
[0067]
According to the description of claim 4, it has the "effect of the invention" of above-mentioned claim 3 like the case of claim 3, and, in addition to this "effect of the invention", has the following "effects of the invention."
According to the description of claim 4, in the condition before having and catching a connection in the periphery section of an absorption member and separating a part from an instrument panel By connecting with an instrument panel, bending so that it may project in the side which catches a connection and separates from the rear face of a part By constituting an inhibition means, did not need to prepare a member other than an absorption member, and it became unnecessary to carry out what says that this another member continues and connects with an absorption member and an instrument panel, and became advantageous in respect of the simplification of structure.
[0068]
According to the description of claim 5, it has the "effect of the invention" of above-mentioned claims 1-4 like any one case among claims 1-4, and, in addition to this "effect of the invention", has the following "effects of the invention."
It catches with the air bag which expanded according to the description of claim 5, and a part and the whole absorption member are pushed uniformly [abbreviation], is supported, and catches, a part and an absorption member incline, and it came to deform into the concave that there is nothing, and it thinks that it gets used near crew's knee region, it becomes with an advantageous thing in respect of becoming easy to deform a part and an absorption member into a concave, and saying, and the impact start near crew's knee region can absorb now appropriately.
[0069]
According to the description of claim 6, it has the "effect of the invention" of above-mentioned claim

5 like the case of claim 5, and, in addition to this "effect of the invention", has the following "effects of the invention."
When it cannot think, for example that it is based on the description of claim 6 and near knee region of crew's one of the two can be caught by the part, It becomes possible to constitute so that near the knee region of crew's another side may be caught with the air bag developed to the method of outside. For example, an air bag is developed toward parts other than near crew's knee region, it becomes possible to constitute so that parts other than near crew's knee region may be caught with an air bag, and the impact concerning parts near crew's knee region and other than near a knee region can be appropriately absorbed now.
[0070]
According to the description of claim 7, it has above-mentioned claim 5 or the "effect of the invention" of 6 like claim 5 or the case of 6, and, in addition to this "effect of the invention", has the following "effects of the invention."
According to the description of claim 7, reduction of a production cost was able to be aimed at by constituting an air bag with the synthetic resin by which blow molding was carried out.
[0071]
According to the description of claim 8, it has the "effect of the invention" of above-mentioned claims 5-7 like any one case among claims 5-7, and, in addition to this "effect of the invention", has the following "effects of the invention."
According to the description of claim 8, by arranging a pad member between an absorption member and an air bag It catches. A part and an absorption member with the shape of an approximate plane (The ** which expansion of an air bag is not made to transform into convex), It becomes possible to make it move to a back sheet side, it can catch, near crew's knee region can be exactly caught now by the part and the absorption member, and the condition that crew's lumbar part moves ahead along with the seat of a sheet can be appropriately suppressed now.
[0072]
When according to the description of claim 8 absorption of the impact which starts near crew's knee region was not fully performed because catch and a part and an absorption member only deform into a concave, it becomes possible to constitute so that the impact which starts near crew's knee region also by the pad member may be absorbed, and the impact which starts near crew's knee region could be absorbed appropriately.
[0073]
According to the description of claim 9, it has the "effect of the invention" of above-mentioned claims 1-8 like any one case among claims 1-8, and, in addition to this "effect of the invention", has the following "effects of the invention."
According to the description of claim 9, it was hard coming to generate the condition that it catches and a part regulates the plastic deformation of an absorption member, and it caught, and a part and an absorption member can come to get used well near crew's knee region, and can absorb now appropriately the impact which starts near crew's knee region.
[Brief Description of the Drawings]
[Drawing 1] A driver's seat and the side elevation of a near [an instrument panel]
[Drawing 2] The lower panel section, the decomposition perspective view in which catching and showing a part, an absorption member, a lower air bag, an inflator, etc.
[Drawing 3] the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 4] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly from the condition shown in drawing 3
[Drawing 5] the [of implementation of invention] -- 1 another gestalt -- setting -- the lower panel section -- catching -- a part, an absorption member, a pad member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 6] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 1st exception gestalt of implementation of invention from the condition shown in drawing 5

[Drawing 7] the [of implementation of invention] -- 2 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 8] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 2nd exception gestalt of implementation of invention from the condition shown in drawing 7
[Drawing 9] It sets in the 3rd exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 10] It sets in the 3rd exception gestalt of implementation of invention, and is the front view of a near [the hole of an absorption member].
[Drawing 11] It sets in the 4th exception gestalt of implementation of invention, and is the front view of a near [the surface part of an absorption member].
[Drawing 12] It sets in the 5th exception gestalt of implementation of invention, and is the side elevation of a near [a driver's seat and an instrument panel].
[Drawing 13] It sets in the 5th exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 14] the [of implementation of invention] -- 5 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the vertical section side elevation of a near [an inflator]
[Drawing 15] the [of implementation of invention] -- 5 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 16] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 5th exception gestalt of implementation of invention from the condition shown in drawing 15
[Drawing 17] It sets in the 6th exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 18] the [of implementation of invention] -- 6 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the vertical section side elevation of a near [an inflator]
[Drawing 19] the [of implementation of invention] -- 6 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 20] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 6th exception gestalt of implementation of invention from the condition shown in drawing 19
[Drawing 21] It sets in the 7th exception gestalt of implementation of invention, and they are a steering handle and the perspective view in which catching and showing near a part.
[Drawing 22] It sets in the 8th exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 23] the [of implementation of invention] -- 8 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the vertical section side elevation of a near [an inflator]
[Description of Notations]
2 Instrument Panel
7 Catch and it is Part.
8 Absorption Member
9 Surface Part of Absorption Member
10 Bending Section of Absorption Member
13 Air Bag, Migration Means
14 Inflator, Migration Means
17 Pad Member
18 Inhibition Means
22 Connection, Inhibition Means

B Predetermined spacing

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] A driver's seat and the side elevation of a near [an instrument panel]
[Drawing 2] The lower panel section, the decomposition perspective view in which catching and showing a part, an absorption member, a lower air bag, an inflator, etc.
[Drawing 3] the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 4] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly from the condition shown in drawing 3
[Drawing 5] the [of implementation of invention] -- 1 another gestalt -- setting -- the lower panel section -- catching -- a part, an absorption member, a pad member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 6] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 1st exception gestalt of implementation of invention from the condition shown in drawing 5
[Drawing 7] the [of implementation of invention] -- 2 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 8] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 2nd exception gestalt of implementation of invention from the condition shown in drawing 7
[Drawing 9] It sets in the 3rd exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 10] It sets in the 3rd exception gestalt of implementation of invention, and is the front view of a near [the hole of an absorption member].
[Drawing 11] It sets in the 4th exception gestalt of implementation of invention, and is the front view of a near [the surface part of an absorption member].
[Drawing 12] It sets in the 5th exception gestalt of implementation of invention, and is the side elevation of a near [a driver's seat and an instrument panel].
[Drawing 13] It sets in the 5th exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 14] the [of implementation of invention] -- 5 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the vertical section side elevation of a near [an inflator]
[Drawing 15] the [of implementation of invention] -- 5 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 16] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 5th exception gestalt of implementation of invention from the condition shown in drawing 15
[Drawing 17] It sets in the 6th exception gestalt of implementation of invention, and is the front view of an absorption member.

[Drawing 18] the [of implementation of invention] -- 6 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the vertical section side elevation of a near [an inflator]
[Drawing 19] the [of implementation of invention] -- 6 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the crossing top view of a near [an inflator]
[Drawing 20] The crossing top view showing the condition that the lower air bag expanded, and caught and the part and the absorption member moved to the drivers side quickly in the 6th exception gestalt of implementation of invention from the condition shown in drawing 19
[Drawing 21] It sets in the 7th exception gestalt of implementation of invention, and they are a steering handle and the perspective view in which catching and showing near a part.
[Drawing 22] It sets in the 8th exception gestalt of implementation of invention, and is the front view of an absorption member.
[Drawing 23] the [of implementation of invention] -- 8 another gestalten -- setting -- the lower panel section -- catching -- a part, an absorption member, a lower air bag, and the vertical section side elevation of a near [an inflator]
[Description of Notations]
2 Instrument Panel
7 Catch and it is Part.
8 Absorption Member
9 Surface Part of Absorption Member
10 Bending Section of Absorption Member
13 Air Bag, Migration Means
14 Inflator, Migration Means
17 Pad Member
18 Inhibition Means
22 Connection, Inhibition Means
B Predetermined spacing

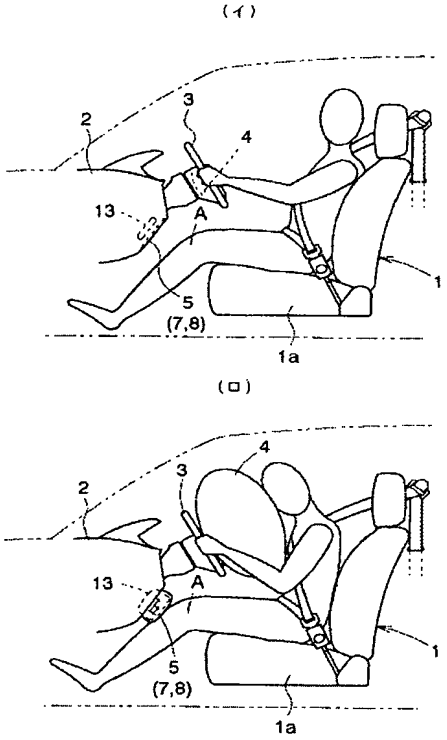
[Translation done.]

* NOTICES *

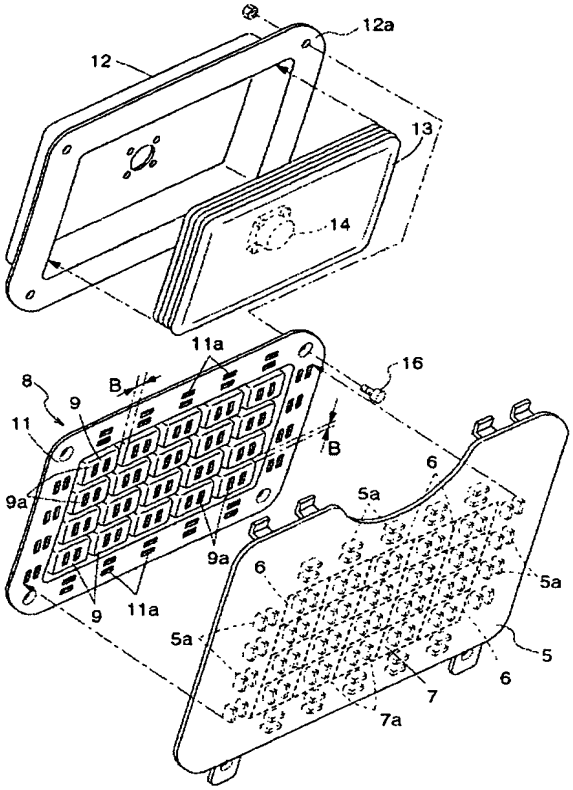
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

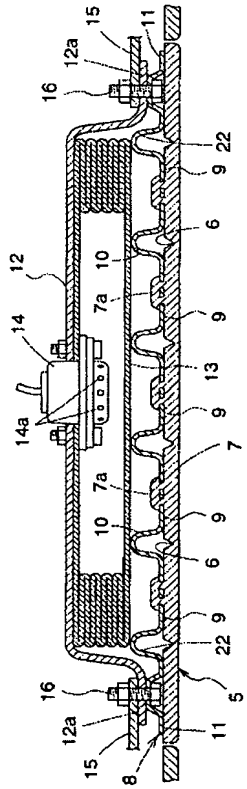
[Drawing 1]



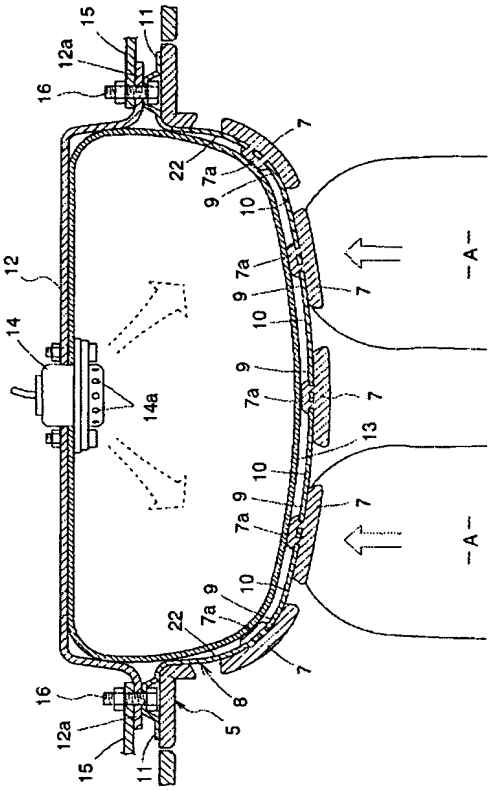
[Drawing 2]



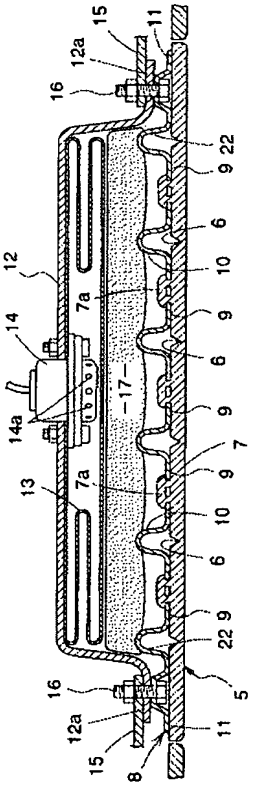
[Drawing 3]



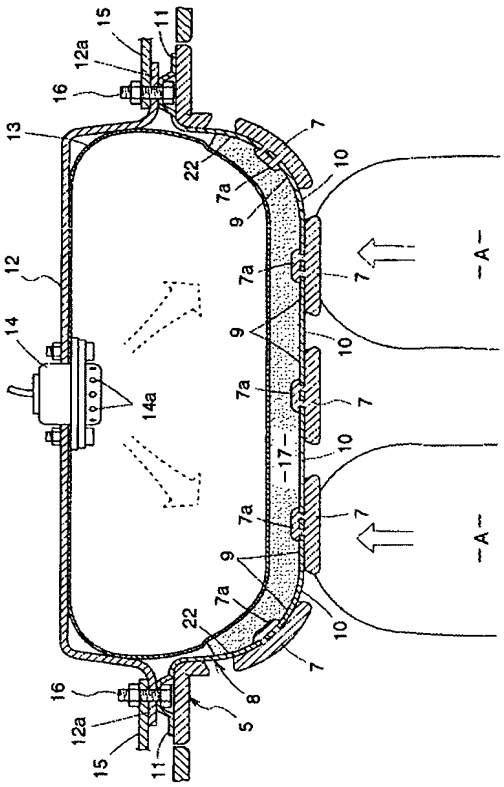
[Drawing 4]



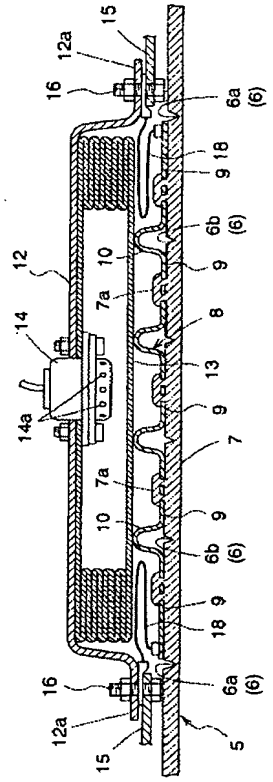
[Drawing 5]



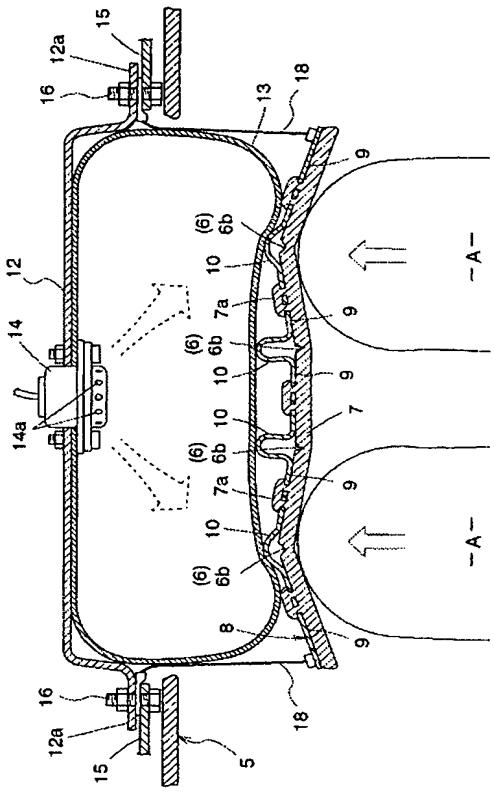
[Drawing 6]



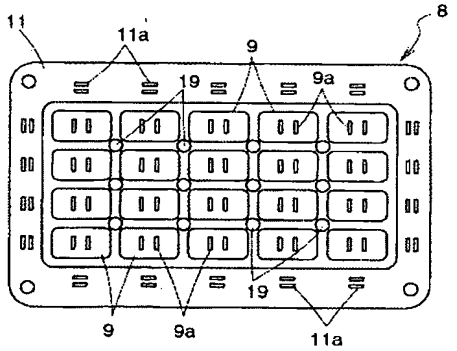
[Drawing 7]



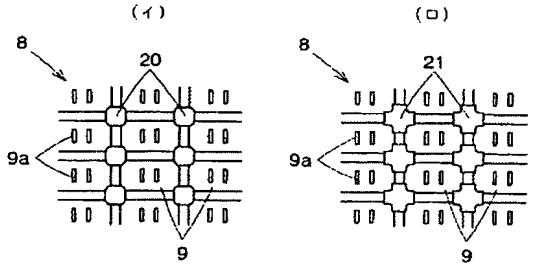
[Drawing 8]



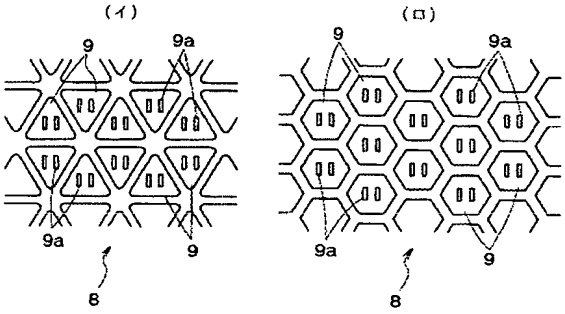
[Drawing 9]



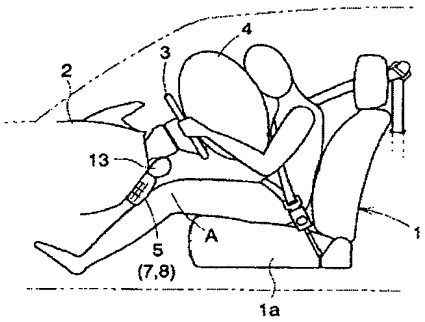
[Drawing 10]



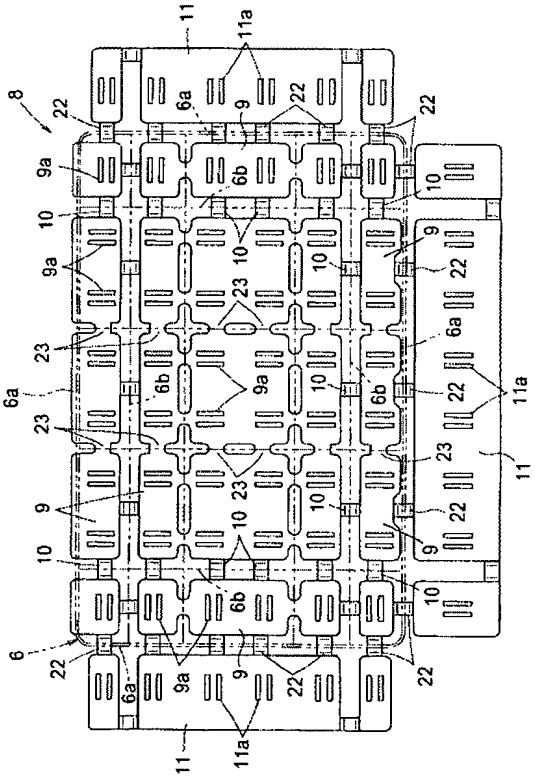
[Drawing 11]



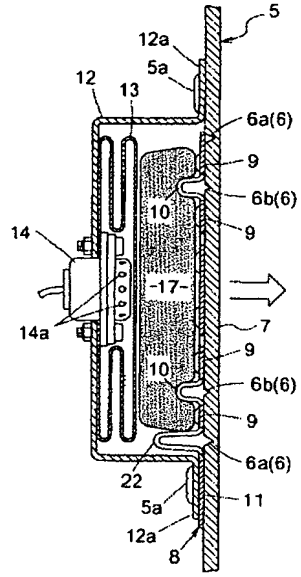
[Drawing 12]



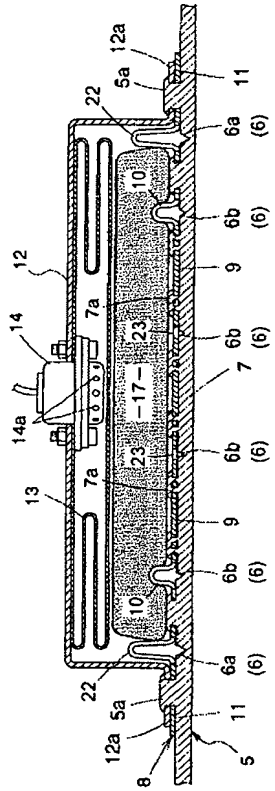
[Drawing 13]



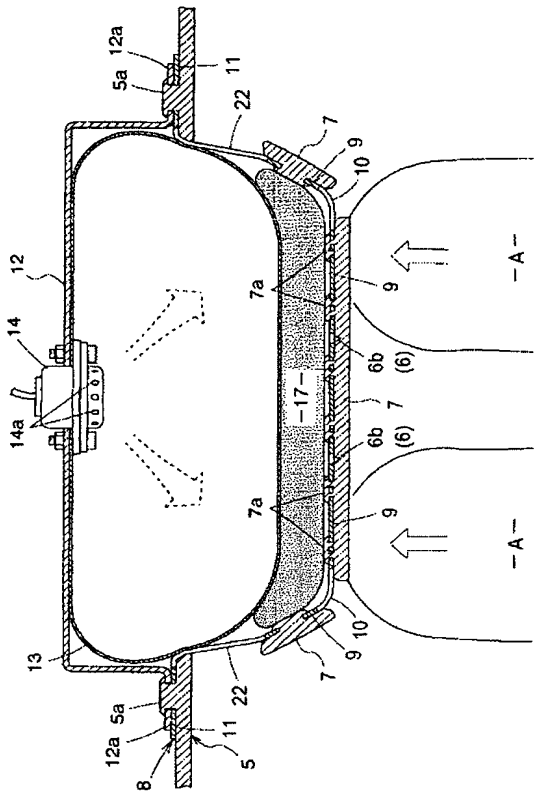
[Drawing 14]



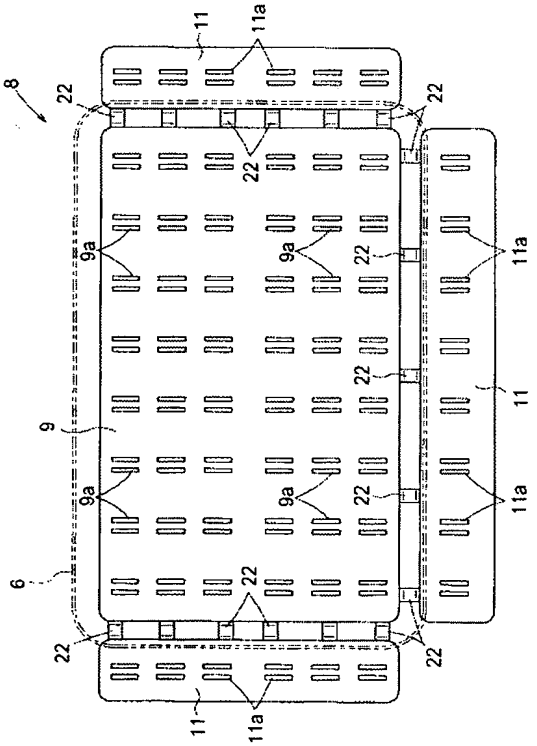
[Drawing 15]



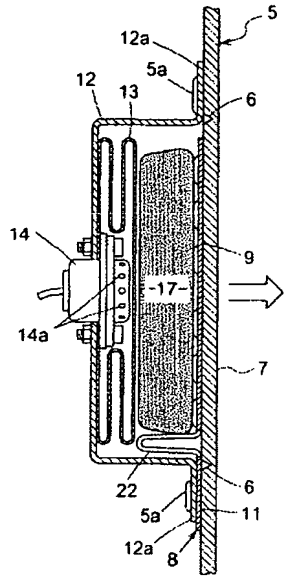
[Drawing 16]



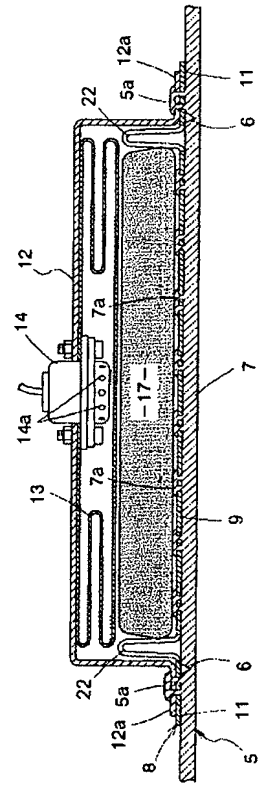
[Drawing 17]



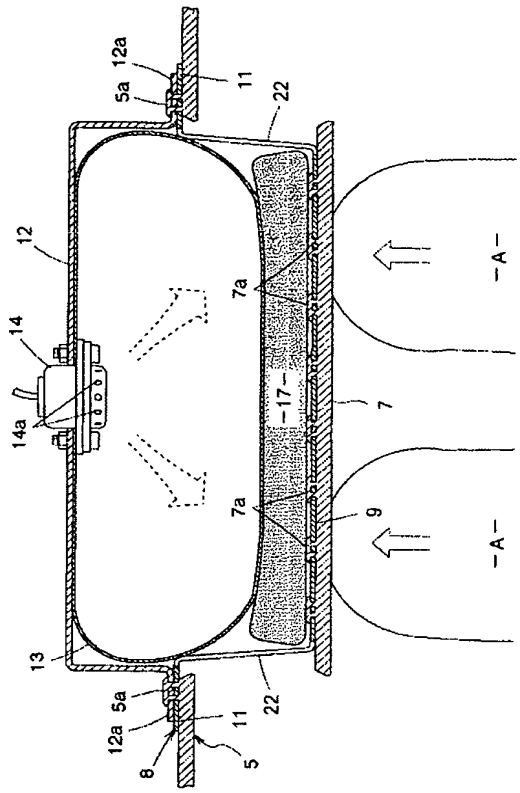
[Drawing 18]



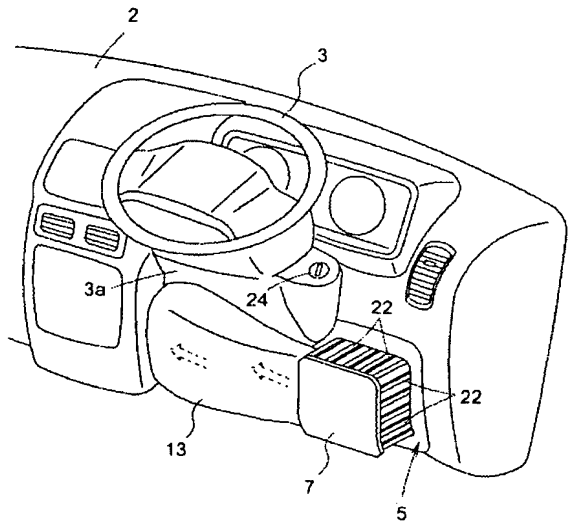
[Drawing 19]



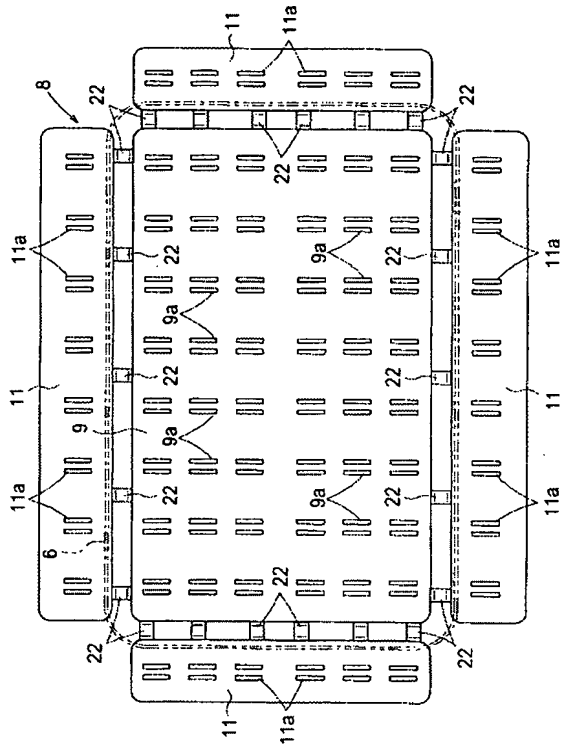
[Drawing 20]



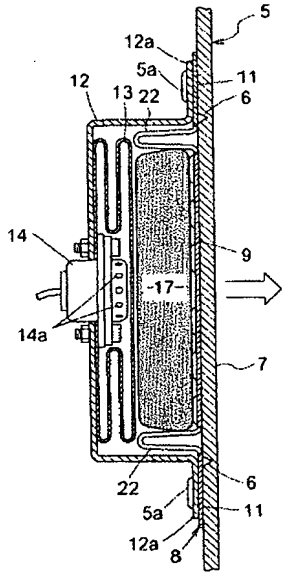
[Drawing 21]



[Drawing 22]



[Drawing 23]



[Translation done.]

(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2004-26126
(P2004-26126A)
(43)公開日　平成16年1月29日(2004.1.29)

(51)Int.Cl.[7]	F I		テーマコード（参考）
B60R 21/045	B60R 21/045	G	3D044
B60K 37/00	B60R 21/045	J	3D054
B60R 21/22	B60K 37/00	B	
	B60K 37/00	J	
	B60R 21/22		

審査請求 未請求　請求項の数 9　OL　（全 21 頁）

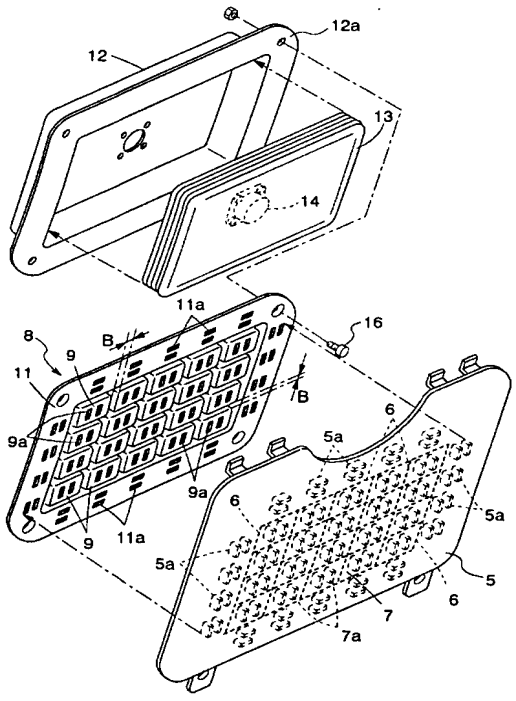
(21)出願番号　特願2002-249031(P2002-249031)
(22)出願日　平成14年8月28日(2002.8.28)
(31)優先権主張番号　特願2002-135417(P2002-135417)
(32)優先日　平成14年5月10日(2002.5.10)
(33)優先権主張国　日本国(JP)

(71)出願人　000002967
ダイハツ工業株式会社
大阪府池田市ダイハツ町１番１号
(74)代理人　100107308
弁理士　北村　修一郎
(72)発明者　田岡　義文
大阪府池田市桃園２丁目１番１号　ダイハツ工業株式会社内

Fターム(参考)　3D044 BA07 BA14 BB01 BC02 BC13
3D054 AA08 AA14 FF12

(54)【発明の名称】車両のインストルメントパネル構造

(57)【要約】
【課題】車両のインストルメントパネル構造において、大きな衝撃が車体に掛かった際に、乗員の膝部付近を受け止めて乗員の腰部がシートの座部に沿って前方に移動する状態を抑えながら、乗員の膝部付近に掛かる衝撃を抑える。
【解決手段】合成樹脂製のインストルメントパネルの下部に、インストルメントパネルから分離可能な受け止め部分７を備え、大きな衝撃が車体に掛かると、受け止め部分７をインストルメントパネルから分離させて後方のシート側に急速に移動させる移動手段１３，１４を備える。塑性変形自在な金属製又は強化合成樹脂製の吸収部材８を受け止め部分７の裏面に取り付ける。
【選択図】　図２



【特許請求の範囲】
【請求項１】
合成樹脂製のインストルメントパネルの下部に、前記インストルメントパネルから分離可能な受け止め部分を備え、
大きな衝撃が車体に掛かると、前記受け止め部分を前記インストルメントパネルから分離させて後方のシート側に急速に移動させる移動手段を備えると共に、
塑性変形自在な金属製又は強化合成樹脂製の吸収部材を前記受け止め部分の裏面に取り付けてある車両のインストルメントパネル構造。
【請求項２】
互いに所定間隔を置いて配置された複数の面部と、前記面部から突出するように折れ曲がりながら隣接する前記面部に亘って接続される折れ曲がり部とを備えて、前記吸収部材を構成し、
前記吸収部材の面部が前記受け止め部分の裏面に接触し、前記吸収部材の折れ曲がり部が前記受け止め部分の裏面から離れる側に突出するように、前記吸収部材を前記受け止め部分の裏面に取り付けてある請求項１に記載の車両のインストルメントパネル構造。
【請求項３】
前記移動手段により前記受け止め部分が前記インストルメントパネルから分離されて後方のシート側に移動した際、所定位置を越えての前記受け止め部分の後方のシート側への移動を阻止する阻止手段を備えてある請求項１又は２に記載の車両のインストルメントパネル構造。
【請求項４】
前記吸収部材の外周部に接続部を備えて、前記受け止め部分が前記インストルメントパネルから分離される前の状態で、前記接続部を前記受け止め部分の裏面から離れる側に突出するように折り曲げながら前記インストルメントパネルに接続することによって、前記阻止手段を構成してある請求項３に記載の車両のインストルメントパネル構造。
【請求項５】
エアバッグ及び前記エアバッグを急速に膨張させるインフレータを、前記受け止め部分の裏面側に備えて、
前記エアバッグ及びインフレータにより前記移動手段を構成してある請求項１～４のうちのいずれか一つに記載の車両のインストルメントパネル構造。
【請求項６】
前記エアバッグが膨張することにより、前記受け止め部分が前記インストルメントパネルから分離されて後方のシート側に移動した際、前記インストルメントパネルと受け止め部分との間から、前記エアバッグが外方に展開するように構成してある請求項５に記載の車両のインストルメントパネル構造。
【請求項７】
前記エアバッグをブロー成形された合成樹脂によって構成してある請求項５又は６に記載の車両のインストルメントパネル構造。
【請求項８】
前記吸収部材とエアバッグとの間にパッド部材を配置してある請求項５～７のうちのいずれか一つに記載の車両のインストルメントパネル構造。
【請求項９】
前記受け止め部分を複数の小部分に分離可能に構成してある請求項１～８のうちのいずれか一つに記載の車両のインストルメントパネル構造。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】
本発明は、乗用車や商用車、バス等の車両において、シートの前方に位置するインストルメントパネルの構造に関する。
【０００２】

【従来の技術】
乗員がシートに着座した状態で車両が衝突すると、このときの前方への慣性力により、乗員の腰部がシートの座部に沿って前方に移動しながら、乗員の腰部を支点として乗員の上半身が前方に倒れようとする。
このような状態において、乗員の前方に配置されたエアバッグが乗員の上半身を受け止める場合、乗員の腰部がシートの座部に沿って前方に移動した分だけ、乗員の上半身がエアバッグに接近することになるので、乗員の上半身が前方に倒れ始めると乗員の上半身が速くエアバッグに達することになる。言い換えると、乗員の腰部がシートの座部に沿って前方に移動した分だけ、乗員の上半身の前方への倒れストロークが小さくなり、エアバッグは前述の小さくなった乗員の上半身の前方への倒れストロークで衝撃を吸収しなければならなくなるので、エアバッグによる乗員の衝撃吸収と言う面で好ましくない。
【０００３】
従って、乗員の腰部がシートの座部に沿って前方に移動する状態を抑えることにより、乗員の上半身の前方への倒れストロークが小さくならない状態で、エアバッグが乗員の上半身を受け止めるようにすることが要求されている。
この場合、例えば特開平１１－１３９２３３号公報に開示されているように、インストルメントパネルの下部の内側に下部エアバッグを配置して、下部エアバッグを膨張させることにより、インストルメントパネルの一部を分離させて後方のシート側に移動させるように構成したものがある。これにより、分離したインストルメントパネルの一部により、乗員の膝部付近が受け止められて、乗員の腰部がシートの座部に沿って前方に移動する状態が抑えられる。
【０００４】
【発明が解決しようとする課題】
従来の技術に記載のように、インストルメントパネルの一部を分離させて後方のシート側に移動させるように構成した場合、乗員の腰部がシートの座部に沿って前方に移動する状態を抑えると言う点に加えて、乗員の膝部付近がインストルメントパネルの一部に受け止められた際に、乗員の膝部付近に掛かる衝撃を抑えると言う点も重要なものとなっている。
この場合、乗員の膝部付近がインストルメントパネルの一部に受け止められた際に、インストルメントパネルの一部が変形することにより、乗員の膝部付近に掛かる衝撃が吸収されることが期待される。
【０００５】
しかしながら、インストルメントパネルは合成樹脂で構成されているので、乗員の膝部付近がインストルメントパネルの一部に受け止められた際に、インストルメントパネルの一部が直線的に折れ曲がったりすることがあるので（前記特開平１１－１３９２３３号公報の図６参照）、乗員の膝部付近に掛かる衝撃を抑えると言う点で改善の余地がある。
本発明は車両のインストルメントパネル構造において、大きな衝撃が車体に掛かった際に、乗員の膝部付近を受け止めて乗員の腰部がシートの座部に沿って前方に移動する状態を抑えながら、乗員の膝部付近に掛かる衝撃を抑えることができるように構成することを目的としている。
【０００６】
【課題を解決するための手段】
［Ｉ］
請求項１の特徴によると、合成樹脂製のインストルメントパネルの下部に、インストルメントパネルから分離可能な受け止め部分を備えて、大きな衝撃が車体に掛かると受け止め部分をインストルメントパネルから分離させて後方のシート側に急速に移動させる移動手段を備えており、塑性変形自在な金属製又は強化合成樹脂製の吸収部材を受け止め部分の裏面に取り付けている。
【０００７】
これにより、請求項１の特徴によると、大きな衝撃が車体に掛かり、乗員の腰部がシート

の座部に沿って前方に移動しようとした際、移動手段により受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動して、受け止め部分により乗員の膝部付近が受け止められて、乗員の腰部がシートの座部に沿って前方に移動する状態が抑えられる。

【０００８】

［ＩＩ］

前項［Ｉ］に記載の状態において、請求項１の特徴によると、塑性変形自在な金属製又は強化合成樹脂製の吸収部材を受け止め部分の裏面に取り付けているので、受け止め部分により乗員の膝部付近が受け止められると、受け止め部分と一緒に吸収部材が塑性変形しようとする。これにより、請求項１の特徴によると、主に吸収部材が塑性変形することによって、乗員の膝部付近に馴染むように受け止め部分及び吸収部材が凹状に変形するのであり、乗員の膝部付近に掛かる衝撃が吸収される。

【０００９】

この場合、請求項１の特徴によると、吸収部材が受け止め部分の裏面に直接に取り付けられており、吸収部材が受け止め部分に支持された状態となっているので、インストルメントパネルの内側の固定部に支持部材を設けて、支持部材に吸収部材を支持させると言うように構成する必要がない（支持部材を備えたとしても、小規模の支持部材でよい）。

【００１０】

［ＩＩＩ］

請求項２の特徴によると、請求項１の場合と同様に前項［Ｉ］［ＩＩ］に記載の「作用」を備えており、これに加えて以下のような「作用」を備えている。

請求項２の特徴によると、互いに所定間隔を置いて配置された複数の面部と、面部から突出するように折れ曲がりながら、隣接する面部に亘って接続される折れ曲がり部とを備えて、吸収部材を構成しており、吸収部材の面部が受け止め部分の裏面に接触し、吸収部材の折れ曲がり部が受け止め部分の裏面から離れる側に突出するように、吸収部材を受け止め部分の裏面に取り付けている。

【００１１】

これにより、請求項２の特徴によると、前項［Ｉ］［ＩＩ］に記載のように、受け止め部分により乗員の膝部付近が受け止められて、受け止め部分が凹状に変形しようとすると、吸収部材の面部及び折れ曲がり部において、吸収部材の隣接する面部が互いに引き離されながら（又は互いに接近させられながら）、吸収部材の折れ曲がり部が曲げられたり延ばされたりして、吸収部材が塑性変形していく。請求項２の特徴のように、複数の折れ曲がり部を吸収部材に備えることにより、単純な１枚の平板状の吸収部材に比べて、吸収部材が乗員の膝部付近に馴染むように塑性変形し易くなる。

【００１２】

この場合、請求項２の特徴によると、吸収部材が金属製又は強化合成樹脂製であるので、吸収部材の折れ曲がり部の形状（例えば吸収部材の折れ曲がり部をどの程度の半径で曲げるか、吸収部材の隣接する面部の所定間隔をどの程度に設定するか、吸収部材の折れ曲がり部の長さ（吸収部材の面部から突出する長さ）をどの程度に設定するか等）を変更することによって、吸収部材の折れ曲がり部の曲がり強度を任意に設定することができるのであり、乗員の膝部付近に掛かる衝撃の吸収具合を任意に設定することが可能になる。

【００１３】

請求項２の特徴によると、吸収部材の面部が受け止め部分の裏面に接触して取り付けられており、吸収部材の折れ曲がり部が受け止め部分の裏面から離れる側に突出する程度に抑えられているので、吸収部材の配置の為に占めるスペースは大きなものにならない。

【００１４】

［ＩＶ］

請求項３の特徴によると、請求項１又は２の場合と同様に前項［Ｉ］［ＩＩ］［ＩＩＩ］に記載の「作用」を備えており、これに加えて以下のような「作用」を備えている。

前項［Ｉ］に記載のように、移動手段により受け止め部分がインストルメントパネルから

分離し後方のシート側に急速に移動した場合、受け止め部分が後方のシート側に移動し過ぎると、受け止め部分により乗員の膝部付近が受け止められた際に、乗員の膝部付近に掛かる衝撃が大きくなることが予想される。

【００１５】

請求項３の特徴によると、移動手段により受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動した場合、所定位置を越えての受け止め部分の後方のシート側への移動を阻止する阻止手段を備えているので、受け止め部分が後方のシート側に移動し過ぎて、受け止め部分により乗員の膝部付近が受け止められた際に、乗員の膝部付近に掛かる衝撃が大きくなると言う状態を避けることができる。

【００１６】

［Ｖ］

請求項４の特徴によると、請求項３の場合と同様に前項［Ｉ］～［ＩＶ］に記載の「作用」を備えておりこれに加えて以下のような「作用」を備えている。

請求項４の特徴によると、吸収部材の外周部に接続部を備えて、受け止め部分がインストルメントパネルから分離される前の状態で、接続部を受け止め部分の裏面から離れる側に突出するように折り曲げながらインストルメントパネルに接続することによって、阻止手段を構成している。

【００１７】

これにより、請求項４の特徴によると、移動手段により受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動した場合、折り曲げられていた吸収部材の接続部が延びることによって、受け止め部分（吸収部材）の後方のシート側への移動が許容されるのであり、この後に吸収部材の接続部が延びることができない状態となることによって、所定位置を越えての受け止め部分（吸収部材）の後方のシート側への移動が阻止された状態となる。

従って、請求項４の特徴によると、吸収部材の外周部の一部分を延出して接続部とするように構成すれば、吸収部材とは別の部材を用意して、この別の部材を吸収部材とインストルメントパネルとに亘って接続すると言うようなことを行わなくてもよい。

【００１８】

［ＶＩ］

請求項５の特徴によると、請求項１～４のうちのいずれか一つの場合と同様に前項［Ｉ］～［Ｖ］に記載の「作用」を備えており、これに加えて以下のような「作用」を備えている。

請求項５の特徴によると、エアバッグ及びエアバッグを急速に膨張させるインフレータを、受け止め部分の裏面側に備えて、エアバッグ及びインフレータにより移動手段を構成している。

【００１９】

これによって、請求項５の特徴によると、インフレータによってエアバッグが膨張することにより、受け止め部分及び吸収部材が押されて、受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動する。この場合、膨張したエアバッグにより受け止め部分及び吸収部材の全体が略均等に押されて支持されるような状態となるので、前項［ＩＩ］［ＩＩＩ］に記載のように、受け止め部分により乗員の膝部付近が受け止められると、受け止め部分及び吸収部材が偏りなく凹状に変形し易い（例えば部分的に凹状に変形し難い部分が生じたり、部分的に凹状に変形し易い部分が生じたりするようなことが少ない）。

【００２０】

［ＶＩＩ］

請求項６の特徴によると、請求項５の場合と同様に前項［Ｉ］～［ＶＩ］に記載の「作用」を備えておりこれに加えて以下のような「作用」を備えている。

前項［Ｉ］に記載のように、合成樹脂製のインストルメントパネルの下部に、インストルメントパネルから分離可能な受け止め部分を備える場合、受け止め部分の面積には限界が

ある（例えばインストルメントパネルの運転席側の部分に受け止め部分を備える場合、ステアリングハンドルの基部の存在により、受け止め部分の面積を大きなものに設定することができない）。

【００２１】

請求項６の特徴によると、エアバッグが膨張することにより、受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動した場合、インストルメントパネルと受け止め部分との間から、エアバッグが外方に展開するように構成している。

これにより、請求項６の特徴によると、エアバッグを少し大きめに構成して、インストルメントパネルと受け止め部分との間から、エアバッグが外方に展開するように構成してやれば、例えば受け止め部分により乗員の片方の膝部付近しか受け止めることができない場合、外方に展開したエアバッグにより乗員の他方の膝部付近が受け止められるように構成することが可能になるのであり、例えばエアバッグを乗員の膝部付近以外の部分に向かって展開させて、乗員の膝部付近以外の部分をエアバッグで受け止めるように構成することが可能になる。

【００２２】

［ＶＩＩＩ］

請求項７の特徴によると、請求項５又は６の場合と同様に前項［Ｉ］～［ＶＩＩ］に記載の「作用」を備えており、これに加えて以下のような「作用」を備えている。

請求項７の特徴によると、エアバッグをブロー成形された合成樹脂によって構成しているので、布体を縫い合わせてエアバッグを構成する場合に比べて、生産コストの低減の面で有利なものとなる。

【００２３】

［ＩＸ］

請求項８の特徴によると、請求項５～７のうちのいずれか一つの場合と同様に前項［Ｉ］～［ＶＩＩＩ］に記載の「作用」を備えており、これに加えて以下のような「作用」を備えている。

請求項８の特徴によると、吸収部材とエアバッグとの間にパッド部材を配置している。これにより前項［ＶＩ］に記載のように、インフレータによってエアバッグが膨張することにより、受け止め部分及び吸収部材が押されて、受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動する場合、エアバッグに対してパッド部材の硬さを適切なものに設定することにより、受け止め部分及び吸収部材を略平面状のままで（エアバッグの膨張により凸状に変形させられずに）、後方のシート側に移動させることが可能になる。

又、受け止め部分及び吸収部材が凹状に変形することによってだけでは、乗員の膝部付近に掛かる衝撃の吸収が充分に行われないような場合、パッド部材によっても乗員の膝部付近に掛かる衝撃が吸収されるように構成することが可能である。

【００２４】

［Ｘ］

請求項９の特徴によると、請求項１～８のうちのいずれか一つの場合と同様に前項［Ｉ］～［ＩＸ］に記載の「作用」を備えており、これに加えて以下のような「作用」を備えている。

請求項９の特徴によると、受け止め部分を複数の小部分に分離可能に構成している。これにより、受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動する場合、受け止め部分が複数の小部分に分離すれば、受け止め部分が吸収部材の塑性変形を規制するような状態が生じ難くなるので、受け止め部分及び吸収部材が乗員の膝部付近に良く馴染むようになる。

【００２５】

【発明の実施の形態】

図１（イ）に示すように、運転席１の前方にインストルメントパネル２及びステアリングハンドル３が備えられ、ステアリングハンドル３の内部にエアバッグ４が備えられている

。合成樹脂製のインストルメントパネル２においてステアリングハンドル３の下側に、合成樹脂製の下部パネル部５が備えられている。

【００２６】

図２及び図３に示すように、下部パネル部５の裏面に複数の溝部６が縦向き及び横向きに格子を描くように形成されており、最外側の溝部６によって囲まれた長方形状の受け止め部分７が、下部パネル部５に形成されている。下部パネル部５の裏面の外周部分及び受け止め部分７の裏面に、多数の凸部５ａ，７ａが一体的に形成されている。

【００２７】

図２及び図３に示すように、金属製又は強化合成樹脂製（複合強化型や繊維強化型等の合成樹脂）の板材にプレス加工を施すことにより、吸収部材８が構成されている。吸収部材８において、正面視で長方形状の面部９が所定間隔Ｂを置いて前後左右に並べて配置されており、面部９の表面から反対側に突出するように折れ曲がりながら、隣接する面部９に亘って接続される折れ曲がり部１０が備えられている。吸収部材８（面部９）の外周部に接続部２２が一体的に備えられ、折れ曲がり部１０と同様に接続部２２が面部９の表面から反対側に突出するように折れ曲がっており、接続部２２に平板状のフランジ部１１が一体的に備えられている。面部９及びフランジ部１１に、小さな長方形状の開口９ａ，１１ａが形成されている。

【００２８】

以上の構造により、図２及び図３に示すように、下部パネル部５の凸部５ａを吸収部材８のフランジ部１１の開口１１ａに挿入し、受け止め部分７の凸部７ａを吸収部材８の面部９の開口９ａに挿入して、吸収部材８の面部９及びフランジ部１１を下部パネル部５及び受け止め部分７の裏面に接触させ、下部パネル部５の凸部５ａ及び受け止め部分７の凸部７ａを加熱して押し潰すことによって、下部パネル部５及び受け止め部分７の裏面に吸収部材８を取り付ける。この状態において、下部パネル部５の溝部６に吸収部材８の折れ曲がり部１０及び接続部２２が対向する状態となり、吸収部材８の折れ曲がり部１０及び接続部２２が下部パネル部５及び受け止め部分７の裏面から離れる側に突出する状態となる。

【００２９】

図２及び図３に示すように、金属製の板材を箱状に折り曲げて構成された支持部材１２が備えられており、下部エアバッグ１３が支持部材１２に取り付けられて、下部エアバッグ１３の内部にインフレータ１４が備えられている。下部エアバッグ１３は、ブロー成形された合成樹脂によって構成され折り畳まれて、支持部材１２に取り付けられている。インフレータ１４は、外周部に多数の噴射口１４ａを備え、内部に点火器（図示せず）、エンハンサー（図示せず）、及びガス発生剤（図示せず）が充填されて構成されている。支持部材１２の外周部にフランジ部１２ａが備えられており、インストルメントパネル２の内側に配置されたブラケット１５に、支持部材１２のフランジ部１２ａ及び吸収部材８のフランジ部１１が、ボルト１６によって連結されている。

【００３０】

以上の構造により、車体に備えられた衝突センサー（図示せず）が衝突を検出すると、インフレータ１４において点火器によりエンハンサーが着火され、エンハンサーの燃焼によりガス発生剤が燃焼し、ガス発生剤から発生したガスが噴射口１４ａから外周方向に放射状に噴射される。下部エアバッグ１３の周辺部から下部エアバッグ１３の中央部に向かってガスが流入し、下部エアバッグ１３が膨張して吸収部材８を後方の運転席１側（図２の紙面右方）に押す。

【００３１】

これにより、図３から図１（ロ）及び図４に示すように、下部エアバッグ１３により吸収部材８の折れ曲がり部１０及び接続部２２が延ばされ（塑性変形されて）、吸収部材８の面部９が互いに離されながら、吸収部材８の全体が略平面状のままで、後方の運転席１側に急速に移動する状態となる。吸収部材８が前述のような状態になると、溝部６が破断して受け止め部分７が複数の小部分に分離し離れる状態となり、受け止め部分７が吸収部材

８と一緒に後方の運転席１側に急速に移動する状態となる。これと同時に、図１（ロ）に示すように、ステアリングハンドル３に備えられたエアバッグ４が膨張する。

【００３２】

図１（ロ）及び図４に示すように受け止め部分７及び吸収部材８が後方の運転席１側に急速に移動した状態で、乗員の腰部が運転席１の座部１ａに沿って前方に移動しようとした際、受け止め部分７及び吸収部材８に乗員の右及び左の膝部Ａの付近が受け止められて、乗員の腰部が運転席１の座部１ａに沿って前方に移動する状態が抑えられる。

【００３３】

この場合、乗員の右及び左の膝部Ａの付近により、受け止め部分７及び吸収部材８が凹状に変形しようとするのであり、主に吸収部材８（吸収部材８の折れ曲がり部１０）が塑性変形し、下部エアバッグ１３が変形することによって、乗員の右及び左の膝部Ａの付近に掛かる衝撃が吸収される。

ブラケット１５に吸収部材８のフランジ部１１がボルト１６によって連結されているので、所定位置を越えての受け止め部分７及び吸収部材８の後方の運転席１側への移動が止められるのであり、吸収部材８が後方の運転席１側に飛散するようなことはない。吸収部材８に受け止め部分７が取り付けられているので（受け止め部分７の凸部７ａを加熱して押し潰すことにより、受け止め部分７が吸収部材８に取り付けられているので）、受け止め部分７が後方の運転席１側に飛散するようなことはない。

【００３４】

［発明の実施の第１別形態］

前述の［発明の実施の形態］において、図５に示すようにウレタン材等のパッド部材１７（所定の厚みを備えた平板状）を、吸収部材８と下部エアバッグ１３との間に配置するように構成してもよい。

このように構成すると図５から図６に示すように、下部エアバッグ１３が膨張して吸収部材８を後方の運転席１側に押し、吸収部材８の折れ曲がり部１０及び接続部２２が延ばされ（塑性変形されて）、吸収部材８の面部９が互いに離された場合、パッド部材１７により吸収部材８の全体が略平面状に維持されながら、後方の運転席１側に急速に移動する状態となる。

【００３５】

［発明の実施の第２別形態］

前述の［発明の実施の形態］及び［発明の実施の第１別形態］に代えて、図７及び図８に示すように構成してもよい。

前述の［発明の実施の形態］及び［発明の実施の第１別形態］では、図３及び図５に示すように、インストルメントパネル２の内側に配置されたブラケット１５に、支持部材１２のフランジ部１２ａ及び吸収部材８のフランジ部１１がボルト１６によって連結されているが、図７においては、ブラケット１５に支持部材１２のフランジ部１２ａのみがボルト１６で連結されている。

【００３６】

図７に示すように、吸収部材８のフランジ部１１及び接続部２２（図２及び図３参照）を廃止し、ブラケット１５と吸収部材８とに亘ってワイヤ１８を接続している（図７に示す状態においてワイヤ１８は少し弛んでいる）。溝部６において最外側の溝部６ａを、内側の溝部６ｂよりも深くして破断し易くしている。これ以外の構造は、図２及び図３と同じである。又、図７に示す構造において、図５に示すようなパッド部材１７を、吸収部材８と下部エアバッグ１３との間に配置するように構成してもよい。

【００３７】

以上の構造により、車体に備えられた衝突センサーが衝突を検出すると、インフレータ１４において点火器によりエンハンサーが着火され、エンハンサーの燃焼によりガス発生剤が燃焼し、ガス発生剤から発生したガスが噴射口１４ａから外周方向に放射状に噴射される。下部エアバッグ１３の周辺部から下部エアバッグ１３の中央部に向かってガスが流入し、下部エアバッグ１３が膨張して吸収部材８を後方の運転席１側に押す。従って、図８

に示すように、最外側の溝部６ａが破断して、吸収部材８の折り曲がり部１０があまり延びず、内側の溝部６ｂがあまり破断しない状態で、受け止め部分７及び吸収部材８が後方の運転席１側に急速に移動するような状態となる。

【００３８】

これにより図８に示すように、乗員の腰部が運転席１の座部１ａに沿って前方に移動しようとした際、受け止め部分７及び吸収部材８に乗員の右及び左の膝部Ａの付近が受け止められると、溝部６ｂの各々が折れ曲がり、乗員の右及び左の膝部Ａの付近に馴染むように受け止め部分７の全体が凹状にへこもうとする。これに伴って、吸収部材８の隣接する面部９が互いに引き離されながら（又は互いに接近させられながら）、吸収部材８の折り曲がり部１０が曲げられて、受け止め部分７と同様に乗員の右及び左の膝部Ａの付近に馴染むように吸収部材８の全体が凹状にへこもうとする。以上のようにして、乗員の右及び左の膝部Ａの付近に掛かる衝撃が吸収される。

【００３９】

ブラケット１５と吸収部材８とに亘ってワイヤ１８が接続されているので、所定位置を越えての受け止め部分７及び吸収部材８の後方の運転席１側への移動が止められるのであり、吸収部材８が後方の運転席１側に飛散するようなことはない。吸収部材８に受け止め部分７が取り付けられているので（受け止め部分７の凸部７ａを加熱して押し潰すことにより、受け止め部分７が吸収部材８に取り付けられているので）、受け止め部分７が後方の運転席１側に飛散するようなことはない。

【００４０】

［発明の実施の第３別形態］

前述の［発明の実施の形態］、［発明の実施の第１別形態］及び［発明の実施の第２別形態］において、図９及び図１０（イ）（ロ）に示すように吸収部材８の折れ曲がり部１０の４つの面部９の間の部分に、小さな丸い穴１９や四角い穴２０、十文字状の穴２１を開口してもよい。これにより穴１９，２０，２１によって、吸収部材８の折れ曲がり部１０が曲がり易くなると考えられる。

【００４１】

［発明の実施の第４別形態］

前述の［発明の実施の形態］、［発明の実施の第１別形態］～［発明の実施の第３別形態］において、吸収部材８の面部９を長方形状ではなく、図１１（イ）に示すように三角形状に構成したり、図１１（ロ）に示すように六角形状に構成してもよい。

【００４２】

［発明の実施の第５別形態］

前述の［発明の実施の形態］、［発明の実施の第１別形態］～［発明の実施の第４別形態］に代えて、図１２，１３，１４，１５，１６に示すように構成してもよい。

図１３，１４，１５に示すように、正面視で長方形状の複数の面部９、特に中央側において隣接する面部９を接続する幅狭の複数の平面状接続部２３、外周側において面部９の表面から反対側に突出するように折れ曲がりながら隣接する面部９に亘って接続される幅狭の複数の折れ曲がり部１０を備えて、吸収部材８が構成されている。面部９の外周部に幅狭の複数の接続部２２が一体的に備えられて、折れ曲がり部１０と同様に接続部２２が面部９の表面から反対側に突出するように折れ曲がっており、接続部２２に平板状のフランジ部１１が一体的に備えられている。面部９及びフランジ部１１に、小さな長方形状の開口９ａ，１１ａが形成されている。

【００４３】

この場合、図１４及び図１５に示すように、吸収部材８の折れ曲がり部１０の長さよりも、吸収部材８の接続部２２の長さが、長いものになるように構成されており、吸収部材８の折れ曲がり部１０が面部９の表面から反対側に突出する量よりも、吸収部材８の接続部２２が面部９の表面から反対側に突出する量が、大きなものになるように構成されている。

図１３及び図１４に示すように、吸収部材８の下辺部、右及び左の横辺部にフランジ部１

１及び接続部２２が備えられているが、吸収部材８の上辺部にフランジ部１１及び接続部２２は備えられていない。

【００４４】

図１３，１４，１５に示すように、吸収部材８の平板状接続部２３、折れ曲がり部１０及び接続部２２に対向するように溝部６が配置されており、溝部６において最外側の溝部６ａ（吸収部材８の接続部２２に対向する溝部６ａ）を、内側の溝部６ｂ（吸収部材８の平板状接続部２３及び折れ曲がり部１０に対向する溝部６ｂ）よりも深くして破断し易くしている。パッド部材１７（図５参照）を吸収部材８と下部エアバッグ１３との間に配置している。下部エアバッグ１３が前述の［発明の実施の形態］、［発明の実施の第１別形態］及び［発明の実施の第２別形態］の下部エアバッグ１３よりも、少し大きなものに構成されている。下部パネル部５の凸部５ａを吸収部材８のフランジ部１１の開口１１ａに挿入し、支持部材１２のフランジ部１２ａの開口に挿入して、下部パネル部５の凸部５ａを加熱して押し潰すことにより、下部パネル部５の裏面に吸収部材８のフランジ部１１と支持部材１２のフランジ部１２ａとが一緒に取り付けられている。これ以外の構造は、図２及び図３と同じである。

【００４５】

以上の構造により、車体に備えられた衝突センサーが衝突を検出すると、インフレータ１４において点火器によりエンハンサーが着火され、エンハンサーの燃焼によりガス発生剤が燃焼し、ガス発生剤から発生したガスが噴射口１４ａから外周方向に放射状に噴射される。下部エアバッグ１３の周辺部から下部エアバッグ１３の中央部に向かってガスが流入し、下部エアバッグ１３が膨張して吸収部材８を後方の運転席１側に押す。従って、図１６に示すように、最外側の溝部６ａが破断して、吸収部材８の折り曲がり部１０及び接続部２２が伸び、内側の溝部６ｂがあまり破断しない状態で、受け止め部分７及び吸収部材８が後方の運転席１側に急速に移動するような状態となる。

【００４６】

図１６に示すように、インストルメントパネル２に吸収部材８のフランジ部１１が連結されているので、所定位置を越えての受け止め部分７及び吸収部材８の後方の運転席１側への移動が止められるのであり、吸収部材８（受け止め部分７）の下辺部、右及び左の横辺部に接続部２２が存在するが、吸収部材８（受け止め部分７）の上辺部に接続部２２が存在しない状態となる。従って図１２に示すように、下部エアバッグ１３は膨張して吸収部材８を後方の運転席１側に押すのに伴って、インストルメントパネル２と受け止め部分７（吸収部材８）との間から、下部エアバッグ１３が上方に展開する。

【００４７】

これにより乗員の腰部が運転席１の座部１ａに沿って前方に移動しようとした際、受け止め部分７及び吸収部材８に乗員の右及び左の膝部Ａの付近が受け止められると、溝部６ｂの各々が折れ曲がり、乗員の右及び左の膝部Ａの付近に馴染むように受け止め部分７の全体が凹状にへこもうとする。これに伴って受け止め部分７と同様に、乗員の右及び左の膝部Ａの付近に馴染むように吸収部材８の全体が凹状にへこもうとする。乗員の右及び左の膝部Ａの付近以外の部分や、乗員の右及び左の膝部Ａが受け止め部分７から上方に外れた際の乗員の右及び左の膝部Ａが、上方に膨張した下部エアバッグ１３の部分によって受け止められる。

【００４８】

［発明の実施の第６別形態］

前述の［発明の実施の形態］［発明の実施の第１別形態］～［発明の実施の第５別形態］に代えて図１７，１８，１９，２０に示すように構成してもよい。

図１７，１８，１９に示すように、下部パネル部５の裏面において１本の溝部６が長方形状に形成されて、中央側に溝部６は形成されておらず、１つの長方形状の受け止め部分７が下部パネル部５に形成されている。

【００４９】

図１７，１８，１９に示すように、正面視で長方形状の１つの面部９が備えられ、面部９

の外周部に幅狭の複数の接続部２２が一体的に備えられて、接続部２２が面部９の表面から反対側に突出するように折れ曲がっており、接続部２２に平板状のフランジ部１１が一体的に備えられて、吸収部材８が構成されている。面部９及びフランジ部１１に小さな長方形状の開口９ａ，１１ａが形成されている。吸収部材８の下辺部、右及び左の横辺部にフランジ部１１及び接続部２２が備えられているが、吸収部材８の上辺部にフランジ部１１及び接続部２２は備えられていない。

【００５０】

図１７，１８，１９に示すように、吸収部材８の接続部２２に対向するように溝部６が配置されている。パッド部材１７（図５参照）を吸収部材８と下部エアバッグ１３との間に配置している。下部エアバッグ１３が、前述の［発明の実施の形態］、［発明の実施の第１別形態］及び［発明の実施の第２別形態］の下部エアバッグ１３よりも、少し大きなものに構成されている。これ以外の構造は、図２，３，１４，１５と同じである。

【００５１】

以上の構造により、車体に備えられた衝突センサーが衝突を検出すると、インフレータ１４において点火器によりエンハンサーが着火され、エンハンサーの燃焼によりガス発生剤が燃焼し、ガス発生剤から発生したガスが噴射口１４ａから外周方向に放射状に噴射される。下部エアバッグ１３の周辺部から下部エアバッグ１３の中央部に向かってガスが流入し、下部エアバッグ１３が膨張して吸収部材８を後方の運転席１側に押す。従って、図２０に示すように、溝部６が破断して吸収部材８の接続部２２が伸び、受け止め部分７及び吸収部材８が略平面状を維持して（受け止め部分７に溝部６が存在しない点による）、後方の運転席１側に急速に移動するような状態となる。

【００５２】

図２０に示すように、インストルメントパネル２に吸収部材８のフランジ部１１が連結されているので、所定位置を越えての受け止め部分７及び吸収部材８の後方の運転席１側への移動が止められるのであり、吸収部材８（受け止め部分７）の下辺部、右及び左の横辺部に接続部２２が存在するが、吸収部材８（受け止め部分７）の上辺部に接続部２２が存在しない状態となる。従って、下部エアバッグ１３は膨張して吸収部材８を後方の運転席１側に押すのに伴って、インストルメントパネル２と受け止め部分７（吸収部材８）との間から、下部エアバッグ１３が上方に展開する。

【００５３】

これにより、乗員の腰部が運転席１の座部１ａに沿って前方に移動しようとした際、受け止め部分７及び吸収部材８に乗員の右及び左の膝部Ａの付近が受け止められると、乗員の右及び左の膝部Ａの付近に馴染むように受け止め部分７の全体が凹状にへこもうとする。これに伴って受け止め部分７と同様に、乗員の右及び左の膝部Ａの付近に馴染むように吸収部材８の全体が凹状にへこもうとする。乗員の右及び左の膝部Ａの付近以外の部分や、乗員の右及び左の膝部Ａが受け止め部分７から上方に外れた際の乗員の右及び左の膝部Ａが、上方に膨張した下部エアバッグ１３の部分によって受け止められる。

【００５４】

［発明の実施の第７別形態］

前述の［発明の実施の第５別形態］及び［発明の実施の第６別形態］において図２１に示すように、インストルメントパネル２の運転席１側の部分でステアリングハンドル３の基部３ａの右横側に、受け止め部分７を配置した場合、吸収部材８の上及び下辺部、右の横辺部にフランジ部１１及び接続部２２を備えるが、吸収部材８の左の横辺部にフランジ部１１及び接続部２２を備えないように構成する。

【００５５】

従って、下部エアバッグ１３が膨張すると、図２１に示すように下部エアバッグ１３が吸収部材８を後方の運転席１側に押すのに伴って、インストルメントパネル２と受け止め部分７（吸収部材８）との間から、下部エアバッグ１３が左方に展開する。これにより、乗員の腰部が運転席１の座部１ａに沿って前方に移動しようとした際、受け止め部分７及び吸収部材８に乗員の右の膝部Ａの付近が受け止められ、乗員の右及び左の膝部Ａの付近以

外の部分や乗員の左の膝部Ａの付近が、左方に膨張した下部エアバッグ１３の部分によって受け止められる。

【００５６】

前述の図２１に示す構造において、下部エアバッグ１３が左方に展開するのに加えて上方にも展開するように構成して（例えば正面視で逆Ｌ字状に展開するように構成して）、上方に展開した下部エアバッグ１３により、キーシリンダ２４を覆うように構成してもよい。

【００５７】

［発明の実施の第８別形態］

前述の［発明の実施の第６形態］において、図２２及び図２３に示すように、吸収部材８の上及び下辺部、右及び左の横辺部にフランジ部１１及び接続部２２を備え、下部エアバッグ１３を前述の［発明の実施の形態］、［発明の実施の第１別形態］及び［発明の実施の第２別形態］の下部エアバッグ１３と同じ大きさに構成してもよい。

【００５８】

これにより、下部エアバッグ１３が膨張すると、下部エアバッグ１３により吸収部材８が略平面状を維持して（受け止め部分７に溝部６が存在しない点による）、後方の運転席１側に急速に移動するような状態となるが、下部エアバッグ１３は上方や横方に展開することはない。

【００５９】

［発明の実施の第９別形態］

前述の［発明の実施の形態］及び［発明の実施の第１別形態］～［発明の実施の第８別形態］において、下部パネル部５及び受け止め部分７の凸部５ａ，７ａを廃止し、吸収部材８の面部９及びフランジ部１１の開口９ａ，１１ａを廃止して、接着剤により吸収部材８の面部９及びフランジ部１１を下部パネル部５及び受け止め部分７の裏面に接着するように構成してもよい。

【００６０】

前述の［発明の実施の形態］及び［発明の実施の第１別形態］～［発明の実施の第８別形態］において、インストルメントパネル２と下部パネル部５とを別体に構成するのではなく、インストルメントパネル２に下部パネル部５を一体的に形成してもよい。溝部６，６ａ，６ｂに換えて、ミシン目状に所定間隔を置いて配置されたスリット等により、受け止め部分７を下部パネル部５に一体的に形成してもよい。本発明は運転席１に対してばかりではなく、助手席（図示せず）に対して適用することも可能である。

前述の［発明の実施の形態］及び［発明の実施の第１別形態］～［発明の実施の第８別形態］において、布体を縫い合わせて下部エアバッグ１３を構成してもよい。

【００６１】

【発明の効果】

請求項１の特徴によれば、車両のインストルメントパネル構造において、大きな衝撃が車体に掛かると、移動手段により受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動するように構成した場合に、塑性変形自在な金属製又は強化合成樹脂製の吸収部材を受け止め部分の裏面に取り付けることによって、受け止め部分により乗員の膝部付近を受け止めて、乗員の腰部がシートの座部に沿って前方に移動する状態を抑えながら、乗員の膝部付近に馴染むように受け止め部分及び吸収部材が凹状に変形していくように構成することができて、乗員の膝部付近に掛かる衝撃を適切に吸収することができるようになった。

【００６２】

請求項１の特徴によると、吸収部材が受け止め部分の裏面に直接に取り付けられており、インストルメントパネルの内側の固定部に支持部材を設けて、支持部材に吸収部材を支持させると言うように構成する必要がないので（支持部材を備えたとしても、小規模の支持部材でよいので）、構造の簡素化の面で有利なものとなった。

【００６３】

請求項２の特徴によると、請求項１の場合と同様に前述の請求項１の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。
請求項２の特徴によると、複数の折れ曲がり部を吸収部材に備えることによって、単純な１枚の平板状の吸収部材に比べて、吸収部材が乗員の膝部付近に馴染むように塑性変形し易くなるので、乗員の膝部付近に馴染むように受け止め部分及び吸収部材が凹状に変形していくようにすると言う面で有利なものとなって、乗員の膝部付近に掛かる衝撃を適切に吸収することができるようになった。

【００６４】

請求項２の特徴によると、吸収部材の折れ曲がり部の形状を変更することによって、吸収部材の折れ曲がり部の曲がり強度を任意に設定することができ、乗員の膝部付近に掛かる衝撃の吸収具合を任意に設定することが可能になるので、異なる種類のインストルメントパネルや各種の車両に対応するように構成することが、容易に行えるようになる。

【００６５】

請求項２の特徴によると、吸収部材が受け止め部分の裏面に接触して取り付けられ、吸収部材の折れ曲がり部が受け止め部分の裏面から離れる側に突出する程度に抑えられており、吸収部材の配置の為に占めるスペースが大きなものにならないので、受け止め部分の付近のコンパクト化の面で有利なものとなった。

【００６６】

請求項３の特徴によると、請求項１又は２の場合と同様に前述の請求項１又は２の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。
請求項３の特徴によると、移動手段により受け止め部分がインストルメントパネルから分離し後方のシート側に急速に移動した場合、所定位置を越えての受け止め部分の後方のシート側への移動を阻止する阻止手段を備えることにより、受け止め部分が後方のシート側に移動し過ぎて、受け止め部分により乗員の膝部付近が受け止められた際に、乗員の膝部付近に掛かる衝撃が大きくなると言う状態を避けることができるようになって、乗員の膝部付近に掛かる衝撃を適切に吸収することができるようになった。

【００６７】

請求項４の特徴によると、請求項３の場合と同様に前述の請求項３の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。
請求項４の特徴によると、吸収部材の外周部に接続部を備えて、受け止め部分がインストルメントパネルから分離される前の状態で、接続部を受け止め部分の裏面から離れる側に突出するように折り曲げながらインストルメントパネルに接続することによって、阻止手段を構成することにより、吸収部材とは別の部材を用意して、この別の部材を吸収部材とインストルメントパネルとに亘って接続すると言うようなことを行わなくてもよくなって、構造の簡素化の面で有利なものとなった。

【００６８】

請求項５の特徴によると、請求項１～４のうちのいずれか一つの場合と同様に前述の請求項１～４の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。
請求項５の特徴によると、膨張したエアバッグにより受け止め部分及び吸収部材の全体が略均等に押されて支持され、受け止め部分及び吸収部材が偏りなく凹状に変形していくようになり、乗員の膝部付近に馴染むように受け止め部分及び吸収部材が凹状に変形し易くなると言う面で有利なものとなって、乗員の膝部付近に掛かる衝撃を適切に吸収することができるようになった。

【００６９】

請求項６の特徴によると、請求項５の場合と同様に前述の請求項５の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。
請求項６の特徴によると、例えば受け止め部分により乗員の片方の膝部付近しか受け止めることができない場合、外方に展開したエアバッグにより乗員の他方の膝部付近が受け止

められるように構成することが可能になり、例えばエアバッグを乗員の膝部付近以外の部分に向かって展開させて、乗員の膝部付近以外の部分をエアバッグで受け止めるように構成することが可能になって、乗員の膝部付近及び膝部付近以外の部分に掛かる衝撃を適切に吸収することができるようになった。

【００７０】

請求項７の特徴によると、請求項５又は６の場合と同様に前述の請求項５又は６の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。

請求項７の特徴によると、エアバッグをブロー成形された合成樹脂によって構成することにより、生産コストの低減を図ることができた。

【００７１】

請求項８の特徴によると、請求項５～７のうちのいずれか一つの場合と同様に前述の請求項５～７の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。

請求項８の特徴によると、吸収部材とエアバッグとの間にパッド部材を配置することにより、受け止め部分及び吸収部材を略平面状のままで（エアバッグの膨張により凸状に変形させられずに）、後方のシート側に移動させることが可能になって、受け止め部分及び吸収部材により乗員の膝部付近を的確に受け止めることができるようになり、乗員の腰部がシートの座部に沿って前方に移動する状態を適切に抑えることができるようになった。

【００７２】

請求項８の特徴によると、受け止め部分及び吸収部材が凹状に変形することによってだけでは、乗員の膝部付近に掛かる衝撃の吸収が充分に行われないような場合、パッド部材によっても乗員の膝部付近に掛かる衝撃が吸収されるように構成することが可能になって、乗員の膝部付近に掛かる衝撃を適切に吸収することができるようになった。

【００７３】

請求項９の特徴によると、請求項１～８のうちのいずれか一つの場合と同様に前述の請求項１～８の「発明の効果」を備えており、この「発明の効果」に加えて以下のような「発明の効果」を備えている。

請求項９の特徴によると、受け止め部分が吸収部材の塑性変形を規制するような状態が生じ難くなり、受け止め部分及び吸収部材が乗員の膝部付近に良く馴染むようになって、乗員の膝部付近に掛かる衝撃を適切に吸収することができるようになった。

【図面の簡単な説明】

【図１】運転席及びインストルメントパネルの付近の側面図

【図２】下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータ等を示す分解斜視図

【図３】下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の横断平面図

【図４】図３に示す状態から下部エアバッグが膨張して、受け止め部分及び吸収部材が運転席側に急速に移動した状態を示す横断平面図

【図５】発明の実施の第１別形態において、下部パネル部、受け止め部分、吸収部材、パッド部材、下部エアバッグ及びインフレータの付近の横断平面図

【図６】発明の実施の第１別形態において、図５に示す状態から下部エアバッグが膨張して、受け止め部分及び吸収部材が運転席側に急速に移動した状態を示す横断平面図

【図７】発明の実施の第２別形態において、下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の横断平面図

【図８】発明の実施の第２別形態において、図７に示す状態から下部エアバッグが膨張して、受け止め部分及び吸収部材が運転席側に急速に移動した状態を示す横断平面図

【図９】発明の実施の第３別形態において、吸収部材の正面図

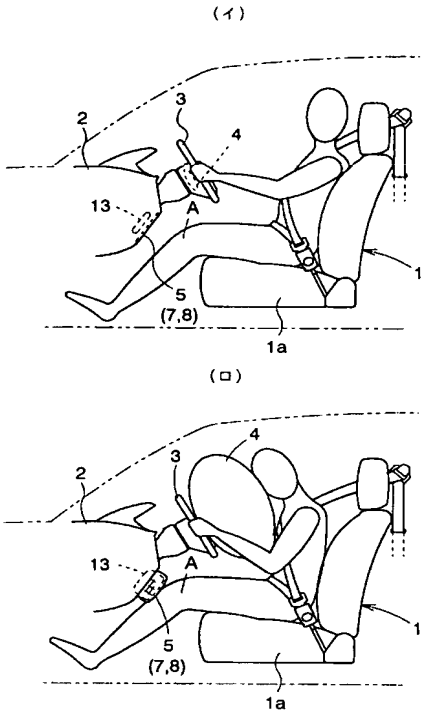
【図１０】発明の実施の第３別形態において、吸収部材の穴の付近の正面図

【図１１】発明の実施の第４別形態において、吸収部材の面部の付近の正面図

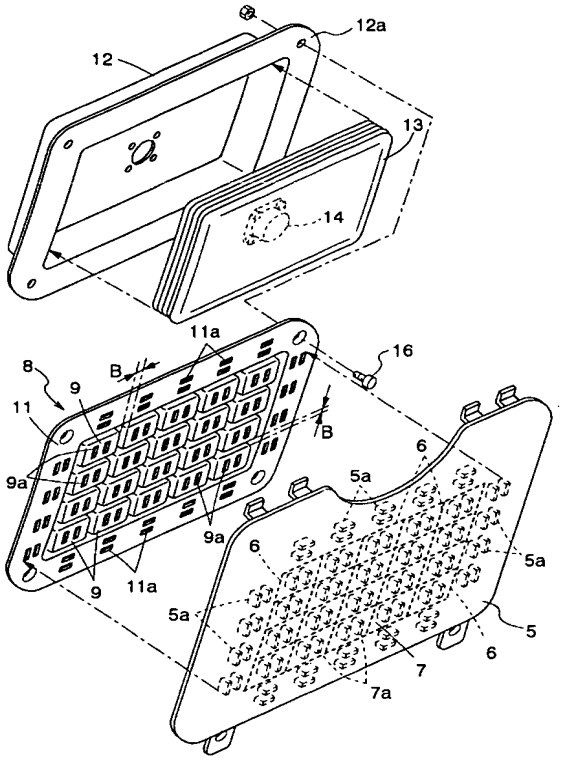
【図１２】発明の実施の第５別形態において、運転席及びインストルメントパネルの付近の側面図
【図１３】発明の実施の第５別形態において、吸収部材の正面図
【図１４】発明の実施の第５別形態において、下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の縦断側面図
【図１５】発明の実施の第５別形態において、下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の横断平面図
【図１６】発明の実施の第５別形態において、図１５に示す状態から下部エアバッグが膨張して、受け止め部分及び吸収部材が運転席側に急速に移動した状態を示す横断平面図
【図１７】発明の実施の第６別形態において、吸収部材の正面図
【図１８】発明の実施の第６別形態において、下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の縦断側面図
【図１９】発明の実施の第６別形態において、下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の横断平面図
【図２０】発明の実施の第６別形態において、図１９に示す状態から下部エアバッグが膨張して、受け止め部分及び吸収部材が運転席側に急速に移動した状態を示す横断平面図
【図２１】発明の実施の第７別形態において、ステアリングハンドル及び受け止め部分の付近を示す斜視図
【図２２】発明の実施の第８別形態において、吸収部材の正面図
【図２３】発明の実施の第８別形態において、下部パネル部、受け止め部分、吸収部材、下部エアバッグ及びインフレータの付近の縦断側面図
【符号の説明】

２	インストルメントパネル
７	受け止め部分
８	吸収部材
９	吸収部材の面部
１０	吸収部材の折れ曲がり部
１３	エアバッグ、移動手段
１４	インフレータ、移動手段
１７	パッド部材
１８	阻止手段
２２	接続部、阻止手段
Ｂ	所定間隔

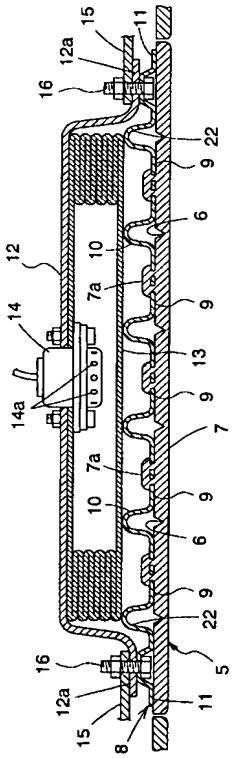
【図１】


(イ)
2
3
4
13
A
5
(7,8)
1
1a
(ロ)
2
3
4
13
A
5
(7,8)
1
1a

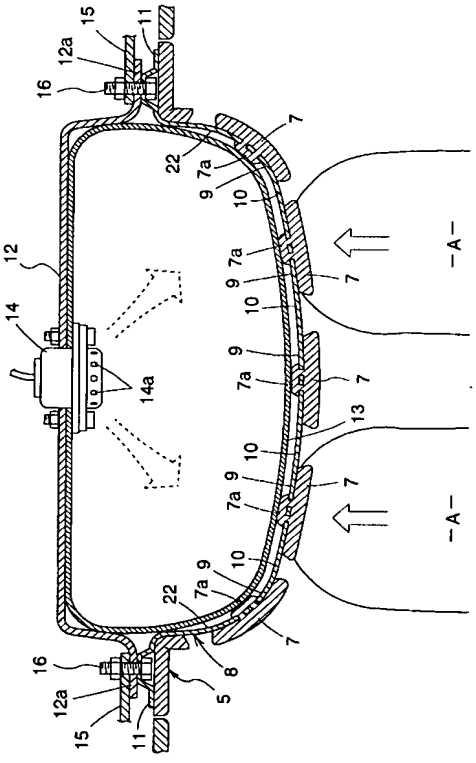
【図２】


12a
12
13
14
11a
16
8
9
B
11
9a
5a
6
5
7
7a

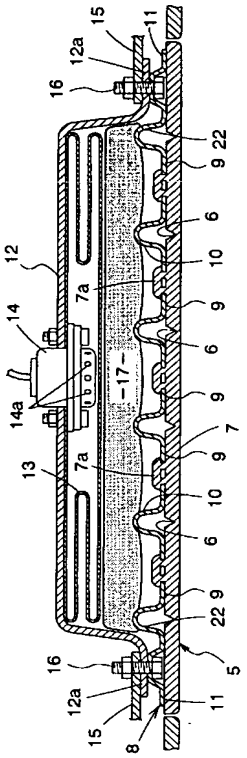
【図３】


15
11
12a
16
22
9
6
12
10
7a
14
13
14a
7
5
8

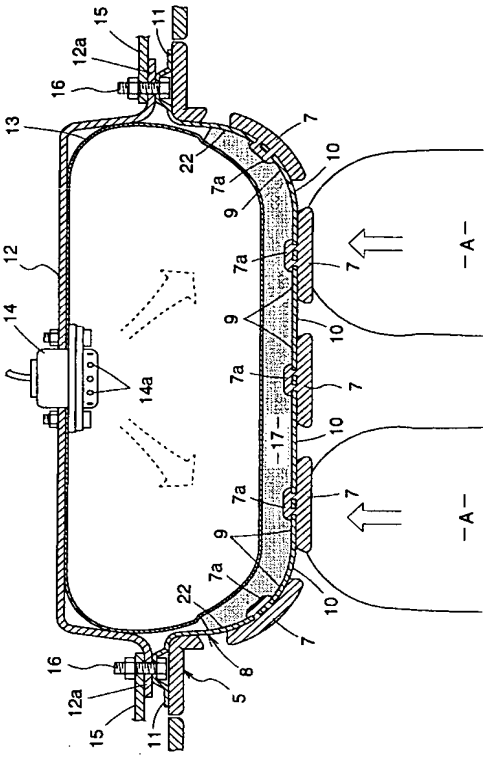
【図４】


15
11
12a
16
7
22
9
7a
10
12
14
14a
13
-A-
5
8

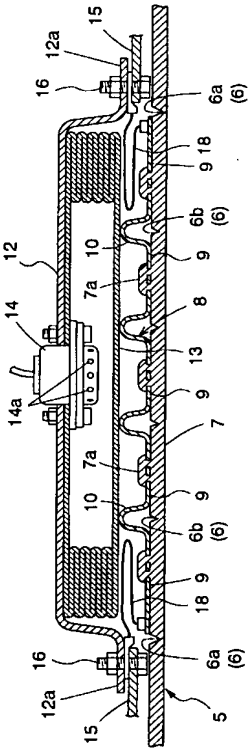
【図５】



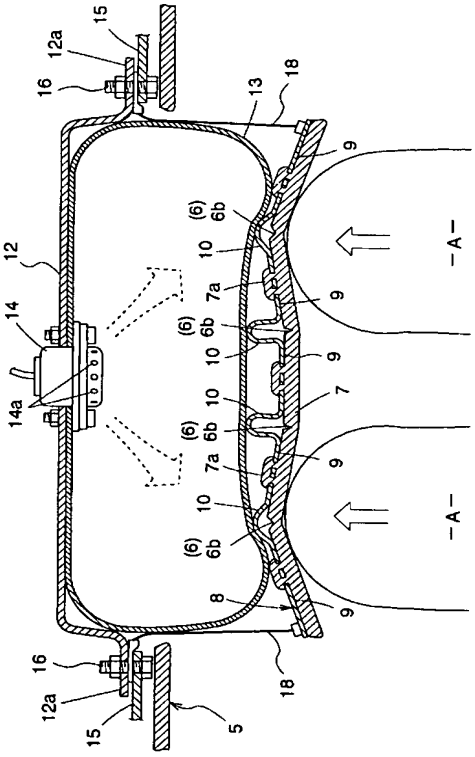
【図６】



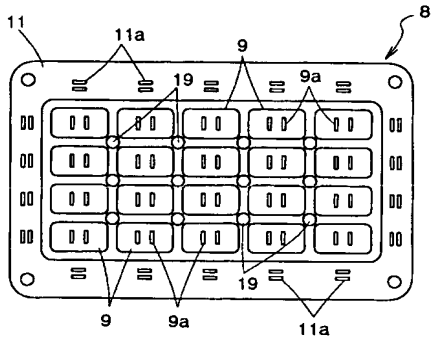
【図７】



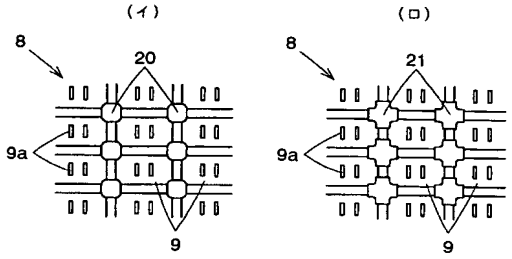
【図８】



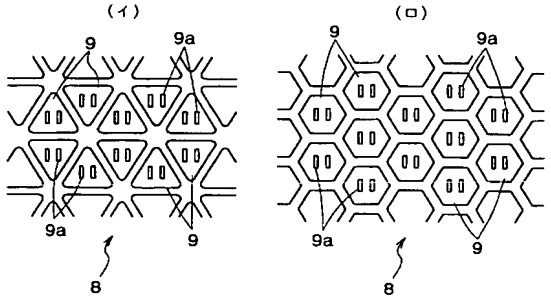
【図９】



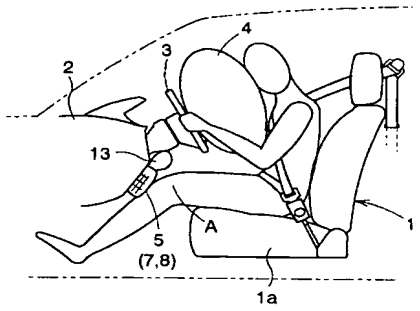
【図１０】



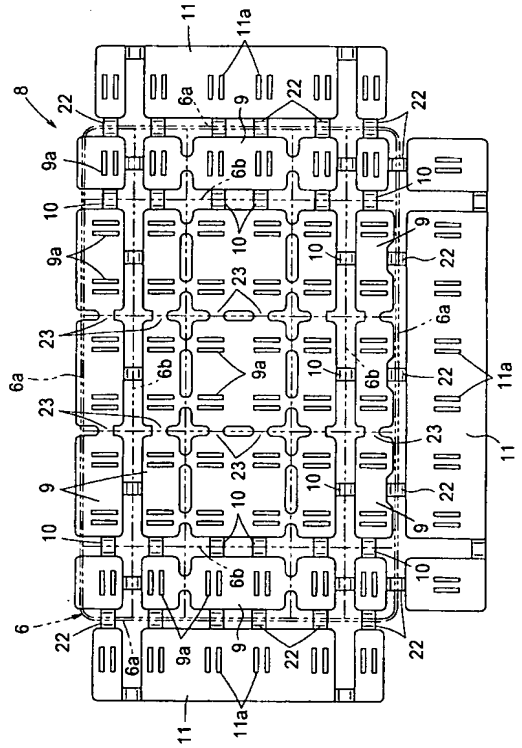
【図１１】



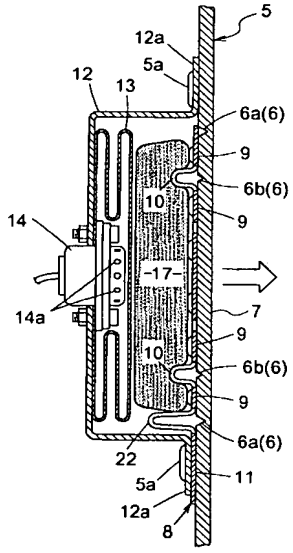
【図１２】



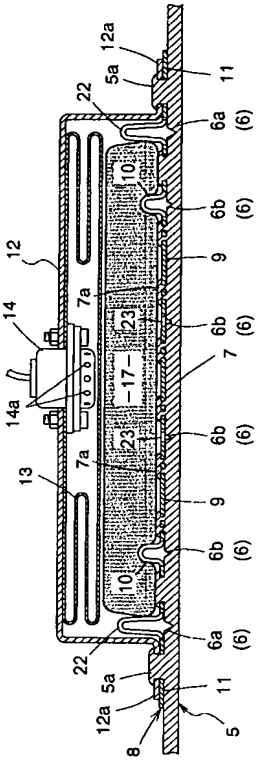
【図１３】



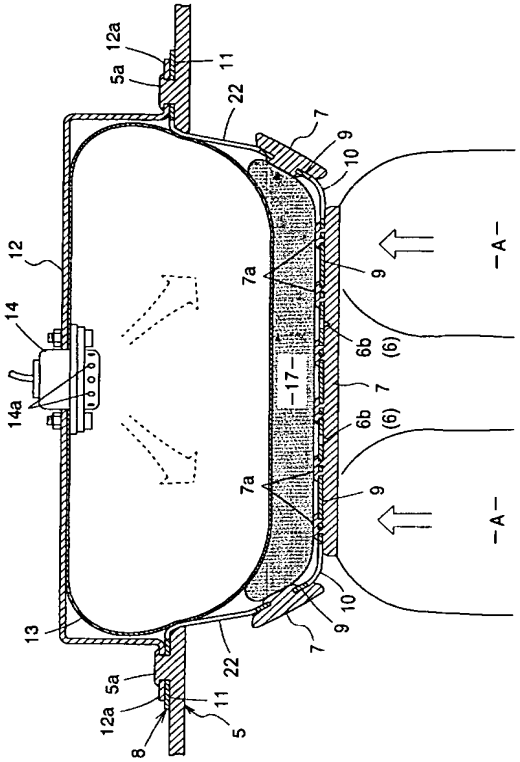
【図１４】



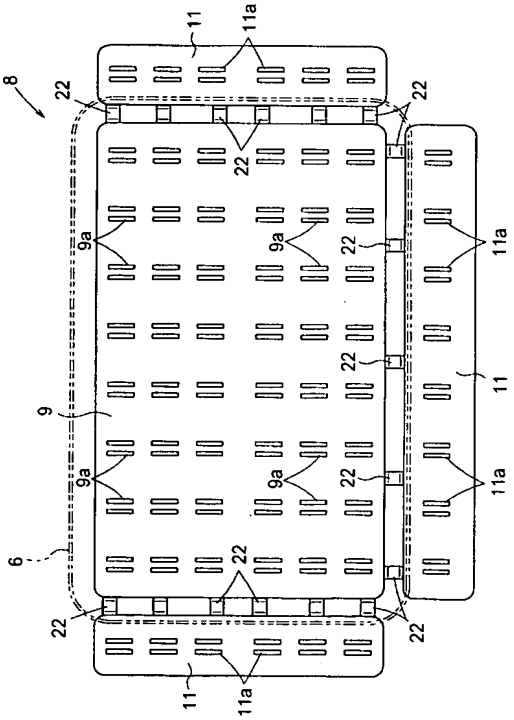
【図１５】



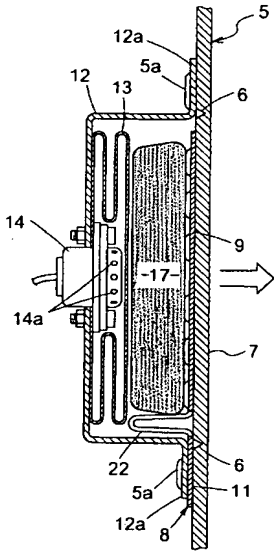
【図１６】



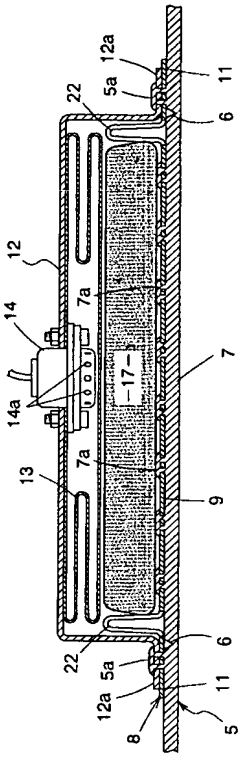
【図１７】



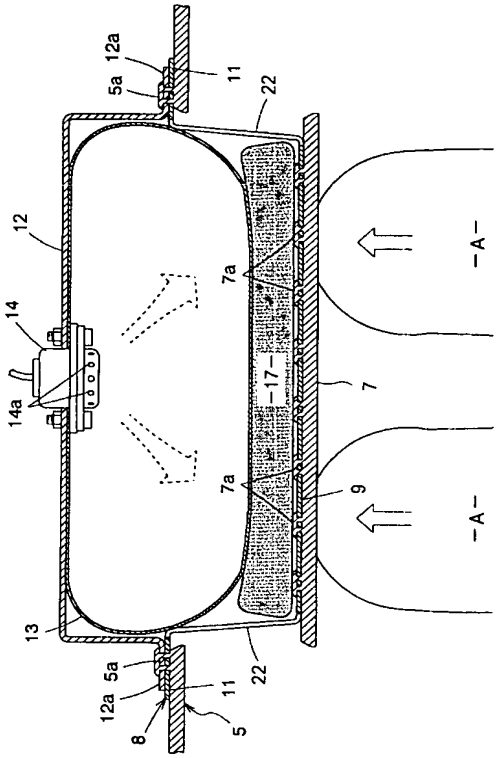
【図１８】



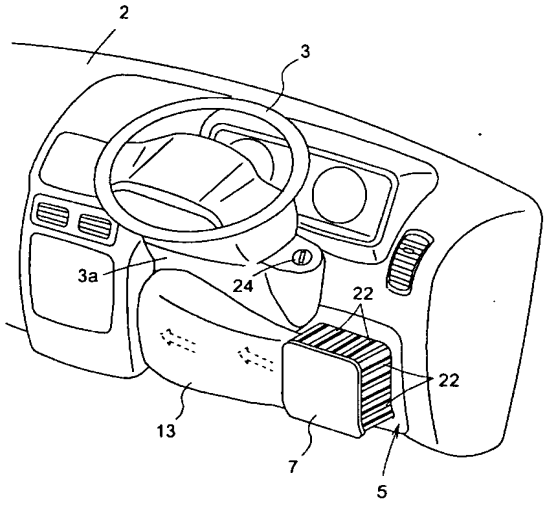
【図１９】



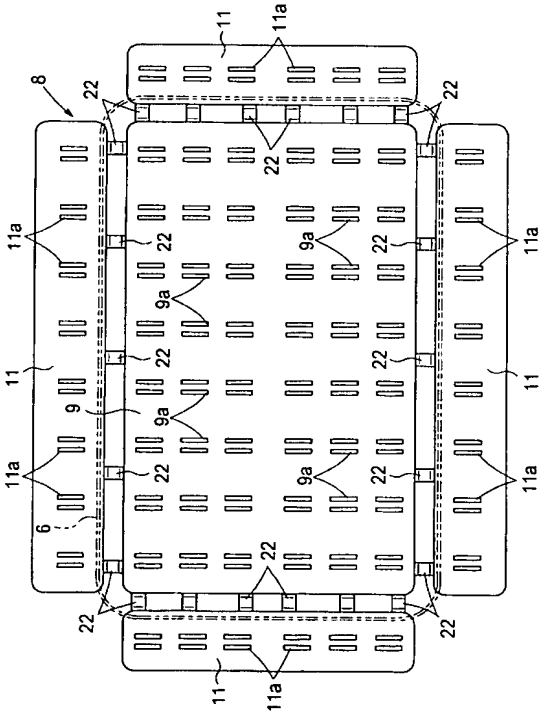
【図２０】



【図２１】



【図２２】



【図２３】